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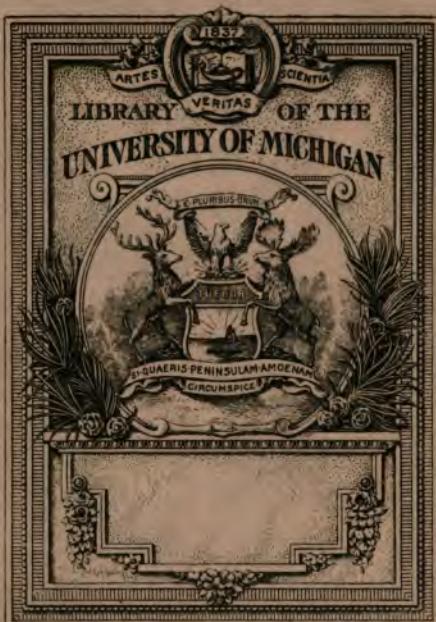
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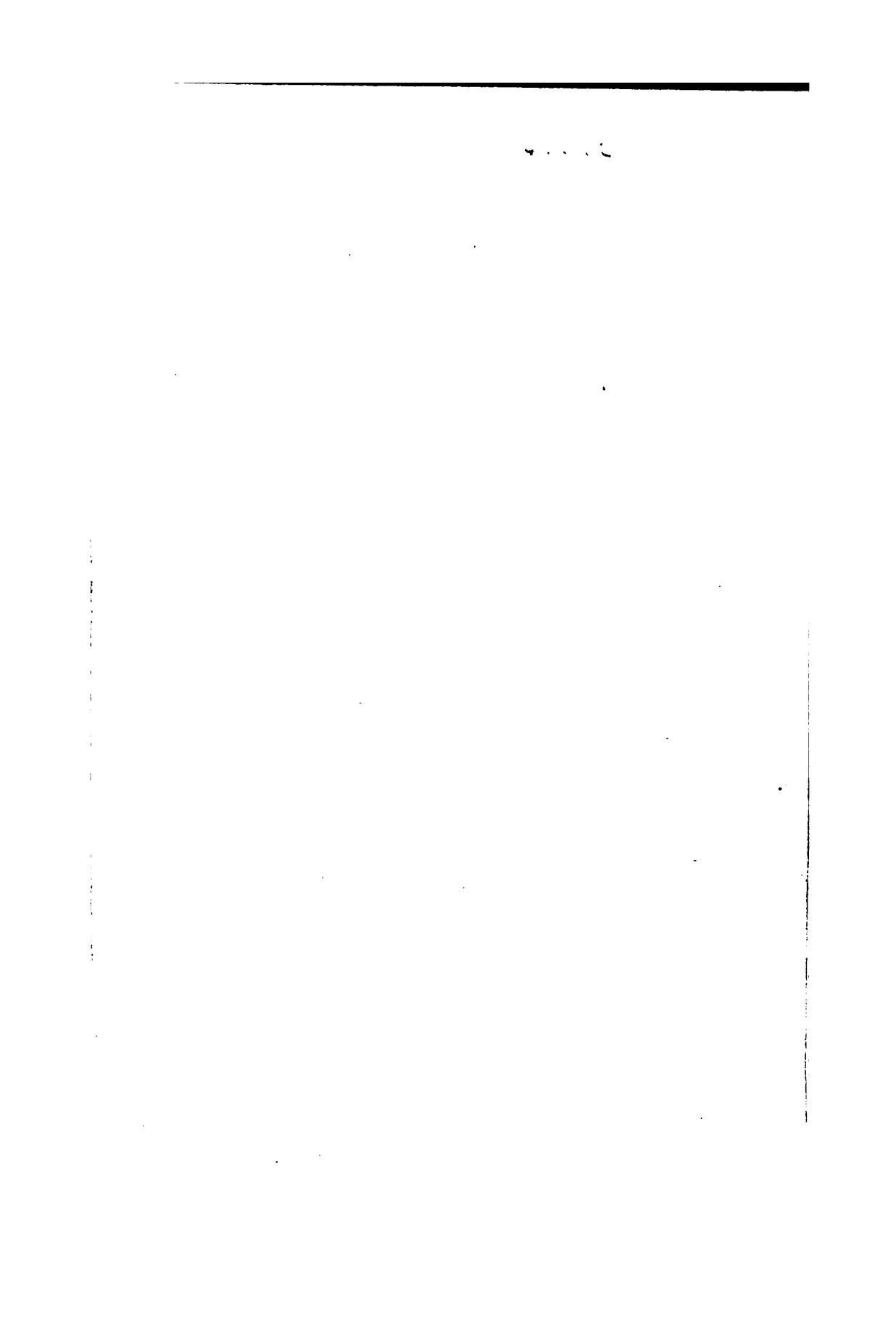
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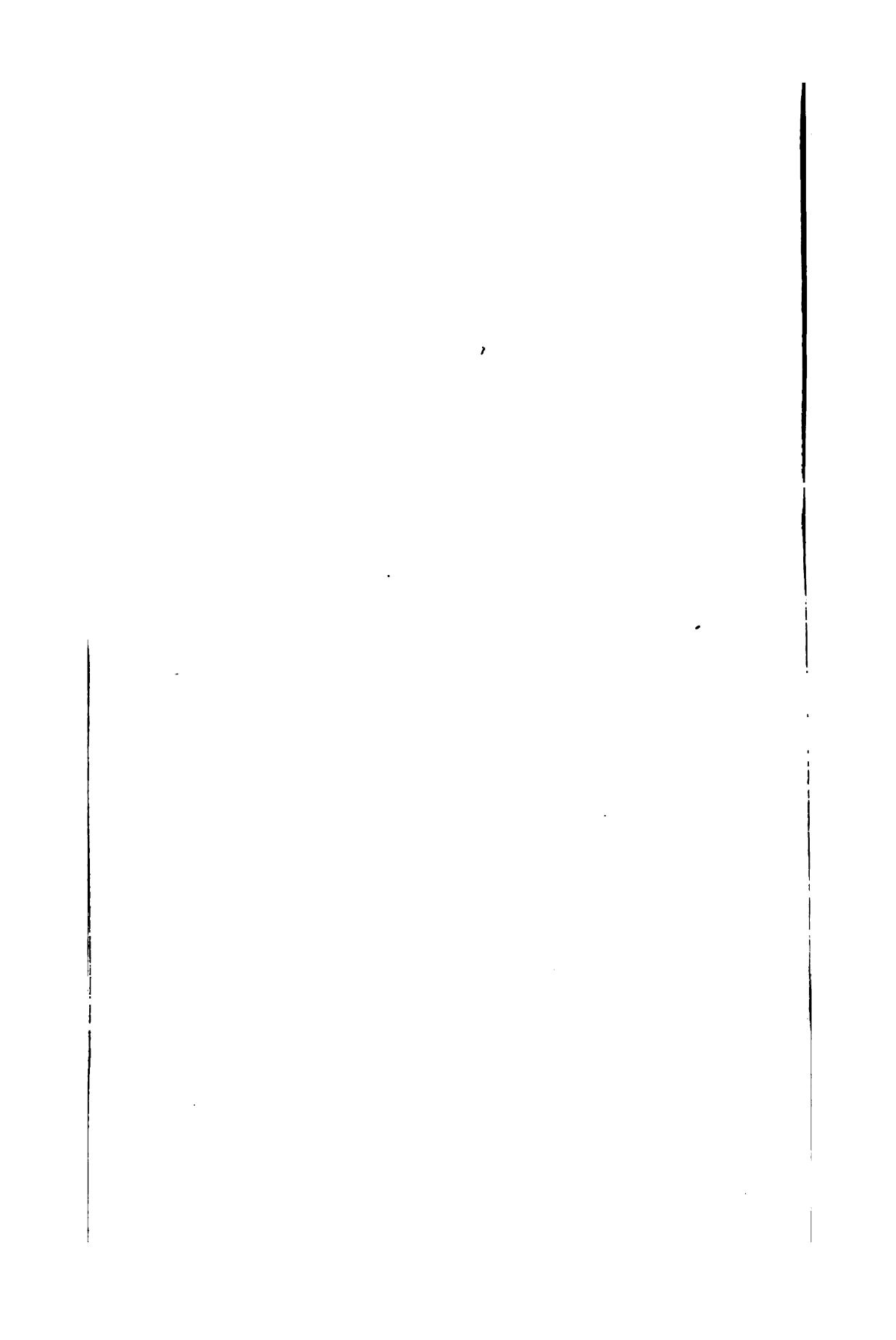
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88
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**MEDICO-CHIRURGICAL
TRANSACTIONS,**

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PUBLISHED BY THE
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OF

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C A S E

OF

C Y A N O S I S,

DEPENDING UPON TRANSPOSITION OF THE AORTA
AND PULMONARY ARTERY.

BY W. H. WALSHE, M.D.,

PROFESSOR OF PATHOLOGICAL ANATOMY IN UNIVERSITY COLLEGE, MEMBER
OF THE MEDICAL SOCIETY OF OBSERVATION OF PARIS, ETC.

COMMUNICATED BY JOHN FORBES, M.D., F.R.S.

READ NOVEMBER 9TH, 1841.

EXAMPLES of cyanosis dependent upon that mode of transposition of the aorta and pulmonary artery in which the former vessel rises from the right and the latter from the left ventricle, while the great venous trunks maintain their normal relations to the auricles, are of such rare occurrence,* that the par-

* The following are the references to the records of the only six cases of the kind I have been able to discover. *Baillie*, Morbid Anatomy, Fasc. I. Pl. vj. 1798. *Langstaff*, London Medical Review, vol. iv. *Farre*, Pathological Researches, Essay I. p. 29. Lond. 1814. *Tiedemann*, in seinem und Treviranus Zeitschrift für Physiol. B. i. S. 111. 1824. *Dugès*, Journ. Gén. de Médecine, vol. 101, p. 88. 1827. *Martin*, Müller's Archiv. H. iij. S. 222. 1839. In the paper of the latter writer I find another reference to *Gumage*,

ticulars of the following case may not be without interest for some of the members of the Society. I feel, in presenting these, that some apology is due for the imperfection with which the condition of the patient during life is described : the truth is, that I saw the child accidentally only, during a visit in the house where it lived, and was prevented from inquiring closely into the symptoms, as I had intended, by its sudden death, before I again had an opportunity of observing it.

H., a decrepit-looking male infant, aged ten months, with extremely flaccid flesh, and slight œdema about the ankles. The skin is of deeply leaden colour, particularly at the toes and extremities of the fingers : the surface feels cool, and the infant appears to suffer from chilliness. The leaden discolouration of the face is general, but particularly deep at the upper lip and both internal canthi : no particular pulsation in these situations. The infant throws about its arms constantly, and is much agitated ; the eyes appear prominent and their expression staring ; respiration very frequent and somewhat gasping ; pulse between 120 and 130 ; no abnormal murmur in the cardiac region or in the course of the great vessels ; heart's action tumultuous, impulse strong and widely diffused.

The latter symptoms were those of a paroxysm, which, I understood, was of frequent but not periodic. Horn, Nasse and Henke's Archiv. 1818. B. ij. S. 552 ; but I have not been able to meet with the volume in any of the public libraries in London.

odical occurrence, and usually relieved by sedatives. The child died during one of these fits, two days after I had seen it ; death being in all probability hastened by the slight diarrhoea and pulmonary catarrh under which it suffered at the time.

I examined the body at 8 A.M., August 12, 1839, thirty-five hours after death : the weather being warm and damp.

External appearances.—Height twenty-five inches and a half ; body not by any means emaciated ; flesh flabby in the limbs, though not so much so as during life, in consequence of some remains of cadaveric rigidity ; fingers flexed firmly towards the palms ; skin of face of a pale straw colour ; no blue discolouration now of inner canthi or upper lip ; mucous surface of lips less deeply coloured than during life ; toes and extremities of fingers pale ; livid discolouration of chest laterally, and of posterior surface of neck ; on the back and thighs this is general ; abdomen tympanitic, and integuments green coloured, especially at the left side ; one third of an inch thick of fat on the abdomen ; subcutaneous veins full of blood,—some drops flow from those on the thorax ; muscular tissue less red than natural ; tongue not protruded through the teeth, and not livid coloured.

Chest.—Pericardium, perfectly healthy, contains about half an once of pale-coloured serosity. Heart : Position in the chest natural ; surface blueish, from distension of the large and small veins with blood ; apex slightly twisted to the left, from the

accumulation of coagula in the venæ cavæ and right auricle, is formed by the extremity of the right instead of the left ventricle. The right half of the organ lies anterior to the left. The aorta rises from the right ventricle, and at its origin slightly overlaps the pulmonary artery, which springs from the left ventricle: no communication (except by the ductus arteriosus) exists between these vessels. The aorta contains a good deal of black grumous blood, intermixed with a few fibrinous granules; its lining membrane unstained and healthy. From the upper border of the arch rise two subclavian and two carotid arteries; the two coronary arteries are given off in the usual way immediately above the sigmoid valves; the latter, as well as those of the pulmonary artery, are of the usual number, smooth, transparent and healthy. The ductus arteriosus, pervious and wide enough to admit with ease a good-sized probe, rises from the posterior border of the pulmonary artery about an inch and a half above the origin of that vessel. The opening into the aorta is of oval shape and exactly opposite the origin of the left subclavian; an elevation of the lining membrane of the vessel is manifest along its lower border. The walls of the ductus arteriosus are slightly thickened, tough and indurated (commencing conversion into ligamentous tissue). The right auricle, containing an enormous quantity of black grumous blood, which pours from both venæ cavæ when divided, receives those vessels in the usual manner at its posterior surface. Close to the appendix is a small coagulum

of shredy fibrine, firmly adherent by prolongations between the interstices of the musculi pectinati ; the adhesion in one place so intimate, that the coagulum will not separate without being torn. Left auricle : Walls almost membranous, scarcely any muscular fibres to be seen in them ; from general appearance its size may be estimated at about one third of that of the right ; it receives the four pulmonary veins in the usual way ; these vessels contain blood of the kind already described. Auricular septum : Foramen ovale perfectly open, of oval form, presents its greatest diameter from above downwards : measures about three eighths by two eighths of an inch (Engl.), —when stretched slightly, four by three eighths. Its anterior border is valvular, semilunar, thick, firm, and has an opaque whitish appearance under the endocardium ; the posterior is thinner and sharper. There is another, but minute, opening in the septum, capable of admitting a small probe. Right ventricle furnished with columnæ carneæ of large dimensions, especially with one of unusual size ; endocardium healthy, auriculo-ventricular orifice free, provided with a mitral valve, which is smooth, transparent and thin. Left ventricle : Scarcely any columnæ on its surface, all of them very ill developed ; endocardium healthy ; auriculo-ventricular orifice free, and provided with a healthy tricuspid valve, one division of which, however, is extremely small. Ventricular septum is not perforated.

Measurements of the heart, compared with those deduced by M. Bizot as the mean in male infants aged from one to four years.*

Heart.	BIZOT.	PRESENT CASE.		
Length . . .	22 $\frac{4}{5}$ †	23 †		
Breadth . . .	27	22		
Thickness . . .	10 $\frac{4}{5}$	15		
Left ventricle.				
Length . . .	20	16		
Breadth . . .	31			
Right ventricle.				
Length . . .	20 $\frac{1}{5}$	16 $\frac{1}{2}$		
Breadth . . .	47 $\frac{4}{5}$			
Thickness of walls.	Right ventric.	Left ventric.	Right ventric.	Left ventric.
At base . . .	$\frac{4}{10}$	3	2 $\frac{1}{4}$	2
middle . . .	$\frac{6}{10}$	$2\frac{9}{10}$	2	1 $\frac{1}{4}$
summit . . .	$\frac{5}{10}$	$1\frac{9}{10}$	2	$\frac{4}{8}$
Ventricular septum.				
Thickness at middle	$3\frac{1}{10}$	2 $\frac{2}{4}$		
Auriculo-ventricular orifices.				
Left	25 $\frac{1}{5}$	24		
Right	29 $\frac{3}{5}$	26 $\frac{1}{2}$		
Orifices of arteries.				
Aortic	17	15 $\frac{1}{2}$		
Pulmonary	18 $\frac{3}{5}$	16 $\frac{3}{4}$		
Width of aorta op- posite ductus ar- teriosus	12	12 $\frac{1}{4}$		
Width of duct. arterios.		2		
Length of do. . . .		4		

* Mémoires de la Soc. Méd. d'Observation, t. i. Paris 1836.

† The measurements are all given in French lines.

Lungs.—Left, of bright florid colour, except where the pulmonary veins issue from the organ ; here there is much venous engorgement. Close to this, under the pleura, are several bullæ of air, three of them nearly as large as a small pea : in none of them is the air moveable. Crepitation general, most marked in the emphysematous parts. Right, engorged at postero-middle part, and much more so than the left, but no emphysema in this situation. Several enlarged vesicles on the anterior surface of the middle lobe ; and here, too, bullæ of air in rows between a few lobules. Otherwise healthy.

Abdomen.—Small and large intestines distended with gas ; peritonæum smooth, whitish, shining and humid ; cavity contains about half an ounce of deep yellow serum in the neighbourhood of the gall-bladder : here too the transverse and ascending colon are stained, of a deep yellow hue. Mesenteric glands of natural size and colour ; mesenteric veins corresponding to the inferior portion of the ileum, (the most dependent part of the intestine in the position the body had been placed,) tinged with dark-coloured blood ; the injection becomes arborescent under the intestinal peritoneum, and the blood is easily moveable with the back of a scalpel.

Liver.

Weight = 3x *

Extreme transverse diameter 5 $\frac{3}{4}$ inches

Antero-posterior 2

Supero-inferior 4 $\frac{1}{2}$

* These measures are according to the English scale, as also those that follow.

Surface smooth, without adhesions; colour deep purple red; anterior border of slaty hue; colour of interior deeper than of surface; tissue firm; veins excessively gorged with fluid blood. Umbilical vein hard and ligamentous, perfectly impervious; when the ductus venosus is cut across, a minute speck of blood appears in the centre. Gall-bladder contains about two drachms of gold-coloured bile; mucous membrane areolar, gives strips of nearly half an inch in length.

Spleen.

Weight = 3ij 3j

Extreme length	3½ inches
breadth	2
thickness	$\frac{7}{8}$

Deep purple grey colour externally; no adhesions; splenic vein very full; substance gorged with blood, and friable; fracture granular.

Left kidney.

Weight 3j 3ij

Length	2¾ inches
Breadth	1½

lobulated inferiorly; both substances distinct; tissue firm, but contains much blood: supra-renal capsule half an inch high.

Right kidney.

Length	2½ inches
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Thickness	1
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Breadth	1½ inferiorly, elsewhere considerably narrower: in other respects like the left.
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Stomach.—A few turged veins running towards

lesser curvature : peritoneal surface perfectly healthy. About two drachms of dirty yellowish fluid, of the thickness of cream, in interior ; internal surface generally rugose, but not mammillated any where ; minute arborescent florid injection around the cardia and along the lesser curvature. Mucous membrane exceedingly thin at great curvature, easily separable with nail, but no strips to be had ; thickened towards cul-de-sac, but here no strips either. Duodenum : Mucous surface of crimson hue from abundant punctiform injection. Small intestine : Similarly discoloured in a few points ; Peyer's glands natural. Mucous membrane generally perhaps slightly softer than natural.

Vena cava inferior, enormously distended, especially close to the liver, from accumulation of grumous semi-coagulated blood ; lining membrane smooth and not stained.

Permission was not obtained to open the cranium.

The following inferences may be drawn from this case :—

1. The transposition of the primary arterial trunks was attended with similar transposition of the ventricles. The right ventricle presented the muscularity characteristic of the left ; the left the thinness of wall natural to the right. That this was not a mere result of the comparative functional activity would appear from the interchange of valves,—the right having the mitral of the left, and the left the tricuspid of the right side. The position even of

the ventricles, both as regards their relation to each other and to the chest generally, was changed ; the plane of the right being anterior to that of the left, and its point forming the apex of the heart. The aorta, too, slightly overlapped the pulmonary artery at its origin.

2. The aortic system constantly circulated black blood, with the exception of the extremely small quantity of red carried from the pulmonary artery by the ductus arteriosus.

3. The pulmonary artery constantly circulated florid blood, with the exception of the small quantity of black which may have found its way through the foramen ovale from the right into the left auricle.

4. The heart was hypertrophous.

5. The viscera generally, so far from being smaller, were actually rather larger than in naturally conformed individuals of the same age, though more flaccid (with the exception of the liver) than usual ; the muscular and adipose systems were defectively nourished, but not in any very extraordinary degree.

6. Hence it follows, that the muscular system and viscera may be nourished, without important derivation from the normal state, by blood of which a minute part only is oxygenised. In other words, an individual may continue to live and be nourished in a state of partial asphyxia, when this has existed from birth.

7. But as the blood in the portion of the aorta lying between the opening of the ductus arteriosus,

and the heart, was wholly venous, and as the coronary arteries rose from the aorta in the usual position close to the sigmoid valves, it follows that the nutrition of the heart must have been wholly effected by non-oxygenated blood. Tiedemann has suggested that in the case observed by him the bronchial arteries might have been the instruments of partial arterialization. They were in that instance "unusually large," and he supposes that the corresponding veins brought back their contents oxygenised to the vena cava and right side of the heart, whence those contents passed by the aorta and coronary arteries to its substance. Admitting this to be correct, (though I am not satisfied that the notion of arterialization occurring in the bronchial arteries is easily admissible,) the quantity of red blood finding its way to the tissues of the heart must have been so small, that the admission scarcely alters the state of the case.

8. In the present case, and in the only three others in the descriptions of which distinct reference is made to the point, the pulmonary and cavæ veins opened respectively into the left and right auricles, as in the natural state: it may be inferred from the existence of cyanosis that they did so in other recorded cases also.

9. This malformation has a tendency to associate itself with others;—patency of the foramen ovale, and a previous state of the ductus arteriosus. The mode of origin of the brachio-cephalic trunks from the arch of the aorta in two of the four cases where

the point is mentioned, was also irregular : there were two only in Baillie's case, four in that now described.

10. This previous state of the ductus arteriosus, which, under other circumstances, would have caused admixture of black blood with the general red current, has, when the present malformation exists, precisely the contrary effect : upon it the whole system depends for its supply of arterialized blood.

11. The difference existing in this case in the width of the two auriculo-ventricular orifices was of the same kind as in the natural condition ; that is, the width of the right orifice exceeded that of the left : and the width of the pulmonary artery at its origin exceeded that of the aorta, as in naturally-formed hearts. Hence, in respect of relative width, the auriculo-ventricular orifices had undergone no transposition, whereas the contrary was the case with the arterial orifices : in other words, while the two orifices of smaller and larger size are respectively, in the natural state, on the same side of the heart, a small and a large one existed on each side in the case described.

12. The effect of this on the circulation must have been that a less quantity of black blood was sent into the aorta at each systole than that proportional, in the ordinary state, to the quantity received into the right ventricle : and a greater quantity of arterialized blood was driven at each systole into the pulmonary artery than that proportional, in the

natural state of things, to the quantity received into its corresponding ventricle.

13. The pulmonary lesions, vesicular and interlobular emphysema, must have materially affected the suffocative paroxysms ; and these were, in turn, most probably the original cause of the emphysema, more especially of the interlobular variety.

14. In addition to the usual attendants upon cyanosis, deficient calorification, dyspnœa and suffocative paroxysms, the three infants who lived for any time (those observed by Langstaff, Farre, and myself,) suffered under diarrhœa more or less habitual.

15. In seven cases in which a foetus thus conformed was born alive, the duration of life was as follows :—

About two months. (Baillie.)

Ten weeks. (Langstaff.)

Five months ; the infant died of variola, caught from a sister. (Farre.)

Twelve days. (Tiedemann.)

Four or five days. (Dugès.)

Ten weeks. (Martin.)

Ten months. (Present case.)

16. The liver was very considerably enlarged : may it, from its augmented size, have been enabled to effect a greater than the physiological amount of decarbonization of the venous blood, and thus have contributed in some measure to diminish the necessity for arterialization in the lungs ?

17. The decrease in the intensity of the blue discoloration of certain parts after death, shows

of itself that this discoloration depended upon the circulation of black blood in the arteries.

I may observe, too, that the aorta contained black semi-coagulated blood,—that the examination of the body did not take place until thirty-five hours after death,—and the weather at the time was warm and damp: yet there was no discoloration of the lining membrane of this vessel. The case consequently supports the doctrine established by M. Louis in respect of aortic staining,—namely, that this anatomical state requires for its production some as yet unascertained change of the arterial tissues or blood, in addition to the physical conditions associated in the present instance.

C A S E
OF
ANEURISM OF THE ASCENDING AORTA,
BURSTING INTO THE RIGHT VENTRICLE:
WITH
A COMMUNICATION BETWEEN THE TWO VENTRICLES.

BY THOMAS S. BECK,
LECTURER ON SURGERY AT SYDENHAM COLLEGE.

COMMUNICATED BY ROBERT LEE, M.D., F.R.S.

READ, NOVEMBER 23RD, 1841.

F——— B———, Surgeon, aged 31, of sanguine temperament, tall, (near 6 feet) and considerable muscular development, though the chest was slightly contracted in proportion to the other parts of the body.

From his earliest recollection he was unable to run or walk quickly any distance, without suffering from violent palpitations of the heart, which also occurred during any particular excitement. He always enjoyed a continued good health, never suffered from rheumatism or other illness until about six years ago, when, being unfortunate in his profession, he

endured great anxiety of mind, and great privations. To his difficulties at this and succeeding periods, he attributed his present illness. About three years ago, being much exposed to the weather, and liable to late hours, he was attacked with a cough, which continued, and, to use his own expression, gradually reduced him "to a skeleton." The palpitations of the heart and the dyspnœa on exertion also greatly increased.

In the beginning of November 1840, anasarca appeared in the legs, and gradually extended to the thighs; and near the end of this month, after enduring great fatigue in the City, he was seized with a violent fit of coughing, which brought on syncope, oppression, and terminated in hysterical symptoms: from this period he grew rapidly worse, and considered it to form an important epoch in his illness.

About Christmas, ascites was noticed, the cough continuing to increase, and the difficulty of breathing became very distressing whenever he attempted to ascend or descend the stairs. At this time he described himself as being occasionally attacked with a peculiar sensation in the heart, which he was unable to define in words. He never expressed himself sensible of any rupture in the cardiac region, nor am I aware that the question was ever asked. In the middle of January, he was attacked with an acute pain in the region of the heart, which was relieved by diuretics, and the external use of acetate of cantharides, whilst under the care of Dr. James Johnson.

On April 27th, 1841, I first visited him, in company with Dr. Walker, when his symptoms were as follows :—

Great anasarca of the lower limbs, extending to the groin. Ascites, the abdomen much distended, and the fluctuation very evident. The pulse firm, wiry, and jerking. The countenance anxious, and the complexion and white of the eye yellow-coloured. The lips and mucous membrane of the mouth of a natural florid colour. Bowels torpid. Urine very scanty and high-coloured ; when tested with nitric acid, no change was produced, and boiled in a test tube it gave only a slight cloud of white. The stomach was very irritable ; few things but what induced vomiting ; strong palpitations of the heart, occurring without exertion, though not so violent as a few months previously. Great dyspnœa. Sputa yellow and viscid, though not coloured with blood. He also suffered under a severe feeling of oppression and sinking, which was slightly relieved by fits of weeping.

Stethoscopic signs.—Dullness on percussion over the whole of the chest. Vesicular murmur distinct, yet diminished in intensity and mixed with bronchial *râles*. The sound of the heart's action heard over the whole anterior and posterior parietes. The impulse increased. Both sounds of the heart were distinctly audible, and following the second sound, a continuous, very superficial, sawing sound with tremor, most distinct at the base of the heart, near to the sternum. This sound was very disagreeable to

the ear, being so distinct and apparently close to it. It was continuous throughout the whole of the action of the heart, but loudest directly after the second sound.

These symptoms continued with little change to the period of his death ; the dullness on percussion increased, the vesicular murmur diminished, and ten days before his death the total dullness on percussion at the lower part of the chest gave evidence of the existence of fluid.

The anasarca increased from the limbs, to the walls of the abdomen, and finally to those of the chest, rendering punctures in the scrotum necessary, which healed, and required to be repeated.

The treatment adopted was palliative. Diuretics were prescribed, but without benefit—elaterium, with small doses of calomel, was next given, which produced copious watery evacuations, and a temporary diminution of the anasarca and ascites. This medicine was continued till his decease, from the great inconvenience he experienced, whenever it was intermitted, from the increase of the anasarca and ascites.

Examination twenty hours after death.—The head and abdomen were not examined. On opening the chest, the lungs filled the cavity of the thorax, and even protruded beyond the cut extremities of the ribs : they were of a purple colour, and a quantity of bloody fluid exuded from an incision made into them. Each pleura contained upwards of a pint of bloody serum—no lymph was found, nor were the

lungs adherent to the costal pleura. The pericardium contained from three to four ounces of red-coloured serum. The heart was much enlarged : taking the fist of the subject as an approximate measure, it was more than $2\frac{1}{2}$ times that size. After removing it, laying open the right ventricle and part of the ascending aorta, and washing with a stream of water, the lining membrane presented a thickened pearly white appearance, particularly marked near the orifice of the aorta, the right and left semilunar valves were thickened, whilst the posterior had undergone little change. On the valves, and at the commencement of the aorta, were several opaque spots. In the centre of the right valve existed an osseous deposit, beginning at the corpus aurantii, and extending to the walls of the ventricle, so as to keep it constantly distended, and although the action of the other valves was impaired, yet they were sufficiently free as to prevent regurgitation, except to a slight extent. The right sinus of Valsalva was enlarged, and presented a round open communication between the aorta and right ventricle, sufficiently large to introduce the end of the little finger. On laying open the right ventricle, the lining membrane presented the same white appearance, though in a less marked degree, the valves were little changed from their natural state, whilst immediately beneath them lay the collapsed sac of an aneurism, resembling the end of a finger of a glove, about three quarters of an inch in length, and bursting in the extremity in a large ragged opening with two small openings at the

side, the edges of all of which were worn and rounded as if the blood had passed for some time by these openings. The mitral valves were healthy, excepting a white tinge in their colour. No coagulum was found in the sac. The right side of the heart was filled, but not distended, with coagulated blood. Immediately at the base of the sac there existed a communication, the size of a goose quill, between the two ventricles. There was no communication between the auricles.

Observation.—It has been questioned whether the opening between the aorta and right ventricle was an original malformation, having the same probable origin as the opening between the ventricles ; or whether it was the remains of an aneurismal sac ; but from the history of the case, the situation of the openings, the extent and nature of the disease found around it, being the same as is found around other aneurismal sacs, the latter appears the most probable conclusion, which is considerably strengthened by a reference to the cases detailed by Mr. Thurnam, in vol. xxiii. of the Transactions of this Society, page 348, and from an examination of some of the preparations there referred to.

ON THE
STRUCTURE AND FUNCTIONS
OF
THE HUMAN PLACENTA.

By JOHN DALRYMPLE, Esq.,
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READ NOVEMBER 23RD, 1842.

THE views submitted to the consideration of the Society in the present brief account of the structure of the human placenta, are principally corroborative of the description of Weber, and the summary given in the first number of R. Wagner's Physiology, as translated by Dr. Willis. The drawings which accompany this paper were made without reference to the plates of that work, and from actual specimens of the injected organ: yet so closely do they agree with the copies of the *Icones Physiologicæ* given by Dr. Willis, as to almost induce the belief of their being mere imitations. This very correspondence, however, while it deprives me of the claim to originality, justifies me in offering the investigations of this structure, as confirmatory of the views of the accurate and laborious foreigner.

So much has been written upon the placenta, and

so various and discrepant have been the descriptions given of its anatomy, and so multiform the theories of its physiology, that I have been induced to propose a simplification both of its physical structure and uses.

It will be shown, in the first place, that any direct communication between the uterine vessels and those of the placenta is impossible, and that, though it is not denied that injections may have entered the uterine sinuses when thrown in from the cord, and, *vice versa*, that colouring matter has passed into the placental tufts when introduced by the maternal vessels: yet both these phenomena are fallacious, and due to very simple causes.

1. The umbilical arteries, after dividing and passing in a convoluted and serpentine form over the foetal surface of the placenta, dip at various intervals into its substance, there dividing and subdividing infinitely. The trunks are covered on the surface of the organ by the foetal membranes, and each branch, as it dips into the thickness of the tissue, carries before it a fold of the chorion.

2. The whole mass of the placenta is made up of the innumerable ramifications of the arteries, terminating in beautiful coiled and convoluted capillaries, (Pl. I. fig. 1.) which form tufts or bouquets at various intervals; these finally become continuous with the minute origins of the umbilical vein, which returns to the foetus in the same direction that the arteries left it, viz., coiled and twisted in the umbilical cord.

AKER AND
TUARY.
Esa.

3. The vein and its branches are greatly larger than the arteries and their subdivisions, but less numerous.

4. The direction of the branches of the umbilical arteries is from the foetal to the uterine surface of the placenta, passing obliquely from the centre to the circumference and edges. The veins return in the reverse direction. All the vessels, besides their own proper coats, are enclosed in a fold of chorion. (Pl. I. fig. 3.)

5. As the minute branches of the arteries terminate in serpentine and very intricately coiled capillaries, so are these latter subdivided into masses, or tufted and bouquet-like processes, clothed by prolongations of the before-mentioned membrane. (Fig. 2.)

6. This membrane (chorion) constitutes (by division into processes) true villi, and each villus contains a tortuous capillary, which entering from the arterial side leaves it by the venous: as the vessel leaves the villus there is a slight but manifest increase of size.

7. A single tuft or collection of villi, well injected, and laid flat under an inch, or half inch, object-glass, appears at first sight an inextricable confusion of curiously-contorted capillary vessels; but separated by needles, and a single villus detached, or expanded beneath a higher magnifying power, this seeming confusion is reduced to order, and the true anatomy of these vessels explained. (Fig. 2.)

8. The membrane enclosing the vessels and capil-

laries is studded on the exterior by nucleated cells, resembling an irregular epithelium. (Fig. 3. c.c.)

9. The enclosed tufts, or capillaries, nowhere anastomose with other than foetal or umbilical vessels.

10. The arteries and veins, though covered by a common membrane, are nowhere so closely bound together, as to constitute one undivided though really double vessel, as described by Dr. Reid,* and "the blunt extremities," adverted to by that gentleman, appear to me to be the villi of the placenta.

11. The villi are not connected together by cellular tissue, but the mass of the placenta is made up by the vascular divisions and subdivisions, and by the tufts or bouquets of capillaries; the interstices are everywhere free, and communicate with each other.

12. There are no distinct or defined cells constituting a maternal portion of the placenta.

13. The uterine surface of the organ is covered by the decidua, which does not appear to enter further than between the lobules, and the depth to which it thus penetrates varies with the extent of the fissures.

14. Stretching from the foetal to the uterine surface of the placenta are irregular semi-fibrous bands, more firm towards the foetal surface, and nearly disappearing towards the decidual: these appear to

* January number of Edinburgh Medical and Surgical Journal, 1841.

give firmness to the spongy mass, and to a certain extent support to the tufts of villi.

15. The bouquets of capillaries are found in all parts of the placenta, but are more numerous at the uterine surface, where they will be found close beneath the decidua.

16. Upon the decidual surface may be observed, thinly scattered, certain papillæ, somewhat obtuse and blunted, about a line and a half in length, which seem to be constituted by innumerable coiled and minute capillaries. Are these the analogues of the foetal cotyledons?

On comparing these observations and the accompanying drawings, we cannot help being struck with the very strong resemblance they bear to the plates given in Wagner's Physiology as copied from Weber. Dr. Reid denies the correctness of Weber's drawings, as represented in the *Icones Physiologicæ* of Wagner. (Tab. xi. fig. 2.)

Nevertheless, in the plate appended to the present paper, which was made from drawings of portions of a placenta fully injected, but without extravasation, the resemblance is so striking as to go a great way to prove the correctness of both draughtsmen, especially as they were made independent of a previous view of Wagner's *Icones*. One of the principal causes of difference that seems to exist in the representations of the same part by different anatomists depends probably upon the different conditions of the injection. Where the vessels have not been fully filled, the extreme branches will present very diverse forms, and the degree of convolution of these minute tubes

mainly depends upon their being accurately filled. Another cause of variation is the quantity of magnifying power used by the observer. It is true, the vessels described in this paper are well seen with even a two-inch object-glass, but it requires a far higher power to develop the real condition and arrangement of these structures. They should be viewed both as opaque and transparent objects, and it is not until the one eighth or perhaps one fourth of an inch object-glass is brought to bear, by transmitted light, upon the villi, that the true nature of the investing membrane is made apparent.

It has been observed by some anatomists, that the uterine veins may be filled by injection thrown in by the umbilical arteries. The explanation of this phenomenon is sufficiently easy. The tufted villi are very delicate, and it not unfrequently happens that the injection bursts through the covering of chorion, and so escapes into the interstices between the villi, which have been usually, but improperly, called the cells of the placenta. If the injection so escapes, it will easily find its way, after distending the spongy mass, into the uterine sinuses, and thus fill the uterine veins.

On the other hand, coloured fluid, thrown into either the uterine arteries or veins, will distend the placental or spongy interspaces, and if the foetal tufts be lacerated by the distension or force of the manipulation, some of it will enter the broken extremities of the foetal vessels. This, however, can never produce a perfect injection of the placenta, as

the compression of the tufts from the injection around, and on the outside of them, will, except in very rare instances, prevent such a display.

If the maternal blood is extravasated into the spongy mass of the placenta by the "curling arteries," as supposed by John Hunter, or enters it in any other fashion, then the foetal tufts become, in function, absorbent villi ; they take up the necessary or nutrient part of that fluid, which is then carried to the foetus by the umbilical vein. The blood having circulated through the foetus, is in part returned to the placenta by the umbilical arteries: part however is retained, and appropriated to the nourishment and growth of the embryo. Thus the arteries, though two in number, are in aggregate diameter less than the vein which brings to the foetus the nutrient fluids of the mother.

In the placenta must go on a double action, or interchange of fluids ; for the blood returned to this organ by the arteries is unfitted for a second circulation through the embryo : at least this is true in part if not entirely. Hence, while the blood, or nutrient material of the blood, brought by the uterine arteries, and previously aërated by the mother, enters by endosmose the absorbent capillaries of the foetal villi, that portion of the foetal blood that requires the action of oxygen escapes by exosmose, and returns by the uterine sinuses and veins to the maternal heart. Thus the lungs of the mother are in fact the lungs of the foetus, and hence the comparatively simple system of the vessels of the cord.

In the incubated hen's egg, taking that as the type of a different condition, we find separate systems for the accomplishment of the different objects.

The nutrient materials out of which the embryo has to be built up, are contained within the shell, and whatever may be the mysterious chemico-vital action between the albumen and the yolk, as developed by a definite temperature, yet it is very certain that the exquisitely beautiful arrangement of the vascular folds of the vitelline sac, heretofore called "vasa lutea," do absorb the nutrient fluids, out of which the blood of the young bird is elaborated. As, however, there is no provision for the aeration of the blood, in this vitelline sac, we find a new membrane, the allantois, developed, whose function, from the arrangement and subsequent termination of its vessels, cannot be doubted to be pulmonary.

Thus then we have a more complicated system of vessels than in the human cord ; for besides the umbilical arteries and vein which spread out upon the allantois, we have the encephalo-mesenteric arteries and veins, which subserve the purpose of absorbing the nutrient fluids of the vitelline.

In the human embryo a more simple mechanism performs the same necessities, in consequence of the intermediate connection of the foetus with the mother ; while the vascular tufts remain the analogues of the vasa lutea and vitelline folds of the incubated egg.

Explanation of Plate I.

Fig. 1. represents the arrangement of the umbilical vessels of the placenta, taken from a wet, injected preparation, and viewed with a power of 120 linear. A A, umbilical arteries ; B, umbilical vein ; C, coiled and convoluted capillaries.

Fig. 2. represents a tuft of villi of the placenta. A, chorion ; B, umbilical vessels ; C, capillary vessels of the villi ; magnified 300 times linear.

Fig. 3. Two villi of the chorion united, enclosing the capillary termination of the artery, returning by the vein. A A, umbilical arteries ; B, umbilical vein ; C, chorion ; D, nucleated corpuscles in the chorion.

ON THE
RELATION BETWEEN THE
SYMMETRY AND THE DISEASES
OF THE BODY.

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READ DECEMBER 14TH, 1841.

THE relation between the processes of disease and the symmetrical form of the body has usually been studied only with a view to determine the circumstances in which one lateral half of the body is more frequently affected with a given disease than the other is. And, with this view, many interesting facts have been observed: so many, indeed, that they have drawn away the attention of pathologists from those which, though they are less numerous, are sufficient to render it highly probable that it is a law of the animal economy, that, when uninfluenced by disturbing causes, all general or constitutional diseases affect equally and similarly the corresponding parts of the two sides of the body.

Of this last class of facts, the following are examples:—

- I. In the body of a woman 51 years old, who

died of a disease in no degree affecting the elbow-joints, I found both of them exhibiting exactly the same morbid changes. In each a portion of the cartilage, of an irregularly triangular form, had been removed by a chronic diseased process from the middle of the great sigmoid cavity of the ulna; and into each of the spaces thus formed, there had grown a process of synovial membrane and fat, which accurately fitted in it. Above each of these larger ulcerations of the cartilage there was a smaller one. The rest of both the joints was healthy, and bore no trace of having been recently affected by any acute disease. On comparing the two ulnæ, the exact resemblance of the alterations in each was most striking: except by the position of the bones, the one could scarcely have been distinguished from the other, for the likeness extended to nearly every one of the numerous minute irregularities in the outline and depth of the ulcerations, and of the processes of membrane that had grown into them. (A preparation of the diseased parts is before the Society.)

II. In two knee-joints from a woman aged 70 I found exactly similar morbid changes. In each, the cartilages of the patella, the femur, and the head of the tibia, were affected with the well-known fibrous degeneration, in precisely the same extent and degree, and in each the edges of the semi-lunar cartilages were similarly and equally affected by the same disease. There was also on each outer condyle a spot of exactly the same form and size,

from which the cartilage was completely removed, and where the exposed and hardened bone formed a shallow depression into which a corresponding elevation on the top of each tibia accurately fitted. There was no morbid change in either joint that was not exactly repeated in the other.

III. A preparation which I made some years ago exhibits similar effects of disease in the heads of two femora from the same subject. From each, the ligamentum teres is entirely removed, and on each there are, just above the cavity in which it had been fixed, two small and almost exactly similar losses of substance in the cartilage. The rest of both joints is healthy.

IV. A similar, but yet more striking instance of symmetrical disease, was presented in two hip-joints (of which the preparation is before the Society,) which I recently examined in the body of a woman aged 68, who died of general dropsy, and of which, as well as of most of the diseases mentioned in this paper, preparations are preserved in the Museum of St. Bartholomew's Hospital. In each of these joints there was attached to the head of the femur a similar, very slender shred of fibrous tissue, the remnant of the ligamentum teres; on each femur there were similar small spots, from which the cartilage had been removed; and more than these, there was a spot on the exactly corresponding part of the neck of each femur, from which the investing fibrous tissue had been removed by ulceration, leaving an aperture into which an irregular elevation of bone

had grown. The aperture and the elevation in each were so alike, that although their forms were far from simple, the naked eye could barely discern a difference between them.

V. The number of examples of similar morbid changes which I have seen in corresponding right and left joints is greater than it can be necessary to detail. I shall therefore mention only three others, in which the symmetry is particularly well marked, and of which preparations have been made. These are, the femora and patellæ of the same subject, on the cartilages of each of which the gouty secretion of urate of soda is deposited in the same quantity, and the same irregular form ; two humeri, on each of which uneven-knobbed growths of bone of the same form and general characters rise up by the sides of the bicipital groove ; and two femora and two patellæ, from which exactly corresponding parts of the cartilage have been removed, and of which precisely similar portions have acquired the peculiar porcelain-like surface.

VI. I have made a preparation of the two hind legs of the same dog, on each of which the femora, patellæ, and other bones, exhibit exactly similar growths, of a coral-like exostosis.

VII. Another preparation exhibits the two ovaries of a woman from whom a carcinomatous breast had been removed some years before death. Both of them are occupied by large growths of cancerous hardness, and exactly alike in size, form, and all other characters. And I have lately met with a

similarly symmetrical development of small carcinomatous tubercles in the ovaries of a woman who died of carcinoma of the gall-bladder.

In advancing these few facts as the chief, though not the only evidence for the existence of such a law as that which is supposed, it must be remarked that each of them involves a coincidence of two events, and a coincidence so exact, that, if often repeated, it is impossible to imagine it to be the result of chance. It is obvious that, if there be no such law, the probabilities are greatly against any slight disease ever occurring coincidentally on two exactly corresponding parts of the body, and leading to exactly the same results in each of them. I do not deny that such an accidental coincidence may happen; and probably an example of it was presented in two exactly similar bands of adhesion which I once found passing from the surface of each lung to the corresponding part of the third rib on each side. Still the chances are almost infinitely against such a coincidence occurring several times in a limited number of cases. But, on the other hand, it is not at all improbable that, although such a law may exist, the numerous disturbing forces to which the economy of the living body is subject, may commonly or even most frequently prevent the law from having effect. It is indeed only reasonable to suppose that such a law would be more often evaded than followed, for its observance requires the exact concurrence of a great number of delicate processes, each of which is liable to be interfered

with by accidents, whose number is incalculable, and of whose mode and extent of operation we are ignorant. This being the case, a single example of symmetry must be of much more weight to affirm the existence of a law of symmetry than a hundred, in which it is absent, are to deny it.

If therefore there were no other facts than those already related, I think the symmetry of certain diseased processes should be regarded as the result of a general law. But the evidence of these facts is corroborated by many others, which, though separately less remarkable, are, when taken together, scarcely less conclusive. For, to establish a law of symmetry in disease, it is not essential that all the facts adduced should be examples of exact similarity in the results of the morbid processes on each side of the body, since a great number of examples of general, or even of slight, resemblance, could not happen by chance. I could add to the instances of symmetry in the chronic diseases of joints already mentioned, many others only rather less perfect than they are. A resemblance more or less exact in the chronic diseases of corresponding bones is also not unfrequently observed ; and the fact that the bones of the lower extremities of those who have had rickets are almost always similarly curved, is a proof that those of both sides were affected in an equal degree, and therefore yielded equally under the pressure of the body. It has been often observed, and it is true, that the transparent cysts so commonly found on the choroid plexuses are sym-

metrical in form and arrangement; and I have often seen an equal resemblance in opaque spots with the Pacchionian glands, as they are called, in the pia mater covering the hemispheres of the brain. I may also refer to the general similarity of the diseased changes in the two kidneys, and the two ovaria, in most of the cases in which they are both affected, and to the occasional, though rare, occurrence of equal degrees of phthisical degeneration, and of pneumonia in both lungs. But the most remarkable example of a general resemblance in the results of disease on the two sides of the body is furnished by the admirable researches of M. Bizot,* which I have in several cases been able fully to confirm. He found that in 2,171 cases of yellow spots in the arteries, a symmetry of the morbid changes was wanting only 62 times; that in 659 cases of lesions consecutive to such spots, it was wanting only 51 times; and that many of even these few exceptions were connected with an absence of symmetry in the affected arteries, or some similar modifying circumstance.

I have selected the evidence for the law of symmetry in general diseases from facts of morbid anatomy, because a similarity in the *results* of two diseased processes affords much more reason to believe that those processes were the same in kind and equal in degree than can be afforded by a simi-

* Recherches sur le Cœur et le Système Arteriel. Mém. de la Société Médicale d'Observation, t. i. p. 408.

larity of symptoms. There can be no doubt that the signs of disease in the cases detailed, if they were at all appreciable, were the same on each side of the body; but there are some affections whose symptoms are more remarkable than their permanent consequences, and of these many afford evidence in favour of a law of symmetry. Such are the cases in which gout and rheumatism pass by metastasis from one part of the body to the corresponding part on the opposite side, but to no other; cases also in which erysipelas, beginning on the bridge of the nose, pursues a similar course over each side of the face, head and neck;* inflammations of the tonsils and of the Schneiderian membrane, which often pass rapidly from one side to the other, and of the eyes and testes, in which the same metastasis more rarely occurs, and some others. But the evidence of these similar signs of disease is of less importance than that drawn from similar results, because we cannot accurately appreciate their degree or their nature, and in many of them there is a failure of coincidence in time which, it is probable, did not happen in the first set of cases.

There is yet another class of facts of which the value for my present purpose may be disputed; those, namely, which relate to changes of structure occurring so commonly in advancing age, that they are not usually regarded as the results of disease. Such are the blanching of the hair, baldness, the

* Dr. Graves' Clinical Lecture, London Medical Gazette, January 14th, 1837, and October 20th, 1838.

arcus senilis, the flattening of the cornea, the falling of the teeth, the atrophy of bones, muscles and other tissues. It may be a question whether these and other changes of the same kind affecting more important organs are not the mere results of regular laws, by which men are late in life as normally degraded towards death, as in earlier years they are developed into manhood, but, if they can be taken in evidence on the present subject, they are all strongly confirmatory of the existence of the supposed law; for in a very large majority of cases, these changes of function and of structure occur equally and similarly on both sides of the body.

On the whole then, I think the evidence adduced is sufficient to prove that, when not disturbed from their natural course, all diseases, such as scrofula, secondary syphilis, gout, rheumatism and others, including all those which are dependent on a morbid condition of the whole economy, or of some part whose influence is felt by all others, such as the blood or the nerves, produce similar local effects in the corresponding parts of the two sides of the body; in other words, that there is the same natural tendency to symmetry in the diseased changes of form and structure, as there is in the normal development of the body. The probability of the existence of such a law is very obvious, for it involves nothing more than this,—that the same influence exerted on two similar parts will produce in both the same results. That it should have been generally lost sight of must be due to the influence of

disturbing causes being so constantly and powerfully exerted on the several portions of the body, that those which are originally formed symmetrical, rarely remain exactly so throughout life, and therefore commonly fail to exhibit the same results when the same morbid influence is exerted upon them.

Should the existence of this law be admitted, there is probably no one in science to which the exceptions are so numerous. But its existence can be no objection against the truth of other general laws, in accordance with which a part on one side of the body is more liable to a particular disease than the corresponding part on the other side ; as the left lung to phthisis, the right to pneumonia, the left lower extremity to phlegmasia dolens, the left testicle to varicocele, &c. Some of these greater liabilities, the two last mentioned for example, are probably the consequences of the peculiar anatomical relations of the part most obnoxious to the disease ; for the relations of the two common iliac and the two spermatic veins are not the same, and the parts from which they bring the blood are hence (if by no other circumstance) not perfectly symmetrical. For others of these diversities, however, I can imagine no sufficient reason ; but it seems very probable that they result, not from a natural and innate tendency to disease in the one part more than in the other, but from various influences acting in different degrees upon them both, and so far destroying the exactness of their symmetry of operation, if not of visible form, that when they are

both subjected to a common excitant of disease, they re-act differently.

From the facts just cited, there appear to me to be at least three different conditions in which diseased changes are symmetrical.

In a first class of cases, they are the result of the gradual degeneration of the tissues in the course of time, or after their functions have ceased, or when, through some general disorder in the economy, the whole body fails of being duly nourished. Such are emaciation, the changes of old age, &c.

In a second class, the symmetrical changes are the result of a morbid condition of the blood, in which some new material bears a peculiar chemical or organic relation to the whole or a part of some symmetrically-arranged tissue or organ, so that when they come in contact, the mode of nutrition in the tissue is altered, or the new material is deposited in it. These changes are symmetrical, because the same morbid material acts similarly with all similar substances. They are symmetrical and general, when the whole of the seemingly similar tissue has really the very same structure and other properties. But, more commonly, they are symmetrical and local, because the corresponding parts on the opposite sides of the body are the only parts in which the symmetry is, in respect of every property of the tissue, perfect. To this class belong the rheumatic, gouty, scrofulous, tuberculous, cancerous, medullary, and some other symmetrical diseases.

In a third class the symmetrical changes are the consequences of diseases passing by metastasis from one part to the exactly corresponding part on the opposite side. In some of these a mordid condition of the blood exists, in others it probably does not. In all, I believe that the influence which determines the situation occupied by the diseased process after metastasis is one conveyed from the part first affected through its nerves (which are in a state of morbid organic excitement) to the nervous centres, and thence reflected and conveyed through *its* nerves to the part secondarily diseased. To this class must be referred the metastatic affections of the eyes, tonsils, testes, and probably some cases of rheumatism and gout.

AN ACCOUNT
OF A CASE OF EXTENSIVE
DISEASE OF THE PANCREAS.

By JAMES ARTHUR WILSON, M.D.,

PYHICIAN TO ST. GEORGE'S HOSPITAL.

READ JANUARY 11TH, 1842.

THE best attention of the physician is never withheld from symptoms of which the seat is in the epigastrium. From this locality the case which I propose to lay before the Society derived its chief interest during life, and here, as a rare disease of the pancreas, it found its explanation after death.

Alexander Tait, æt. 41, a gentleman's servant, acknowledging himself to have been a "free liver," and to have "drunk much," was admitted under my care in St. George's Hospital on October 21st, 1835. His complexion was unhealthy, and his countenance distressed in its expression. He had long suffered from a constant pain in the epigastrium, (described as a "drawing and pulling together of the pit of the stomach,") which was occasionally aggravated by paroxysms into severe agony. It was felt most in the recumbent posture, after taking

food, and when the bowels were constipated. When most severe, it was accompanied by headache, giddiness and sickness. He had vomited blood sixteen months before his admission, and frequently during his illness. The bowels were obstinately costive, the urine was free. He occasionally complained of a "fluttering" in the region of the heart, but there was no irregularity in the pulse, which was low and slow, averaging about sixty-five beats in the minute. He was much distressed by "cold feet," and complained greatly of want of sleep. About a month from the date of the patient's admission, and after a longer interval than usual of comparative freedom from suffering, the pain suddenly returned in the epigastrium with greatly aggravated violence, and, as on former occasions, in the night time.

There was, at the same time, shivering, with the most intense headache and sickness ; the eyes were bloodshot, and the pulse became exceedingly rapid. A fit of maniacal delirium was succeeded by complete unconsciousness, with remarkable paleness of visage, and in this state of comatose exhaustion the patient died.

No organic disease had been detected on repeated examination of the epigastric and umbilical regions, and in the absence of any certain grounds for diagnosis, it was conjectured, that the symptoms might depend on a morbid growth projected from the lower surface of the liver, and involving the neighbouring surface of the stomach. During the month that the patient remained under treatment

in the Hospital, no relief was obtained from his sufferings, excepting by the free operation of medicine on his bowels. The sickness and vomiting were not controlled by effervescent draughts, by the liquor potassæ, by hydrocyanic acid in moderate doses, or by any medicines of this class. Opium did not bring sleep or remove pain, and calomel seemed to do good only when it purged.

Post Mortem.—On examining the body on November 20th, fourteen hours after death, a very thick layer of fat was observed over the muscles of the abdomen. There was a close universal adhesion of the pericardium to the heart, which was otherwise healthy, and contained many firm coagula of gelatinous consistence in its cavities: there was no disease of the lung, or of its investing membranes.

The brain was softer than usual, with considerable vascularity of its medullary structure; some clear serous fluid was observed on the outer surface of the arachnoid membrane, but very little had been effused into the ventricles.

The stomach was capacious and healthy, the liver pale, soft and friable; the spleen was more fluid than solid, yielding as a grumous pulp to the slightest pressure. The kidneys were healthy in their structure.

The pancreas was of unusually hard texture, and much contracted in its general dimensions. Its ducts were universally filled with a compact, white, earthy deposit, which, on analysis, was found to

consist of nearly pure carbonate of lime, with a fibrinous nucleus of animal matter.*

In reference to this disease of the pancreas, Dr. Baillie, in his posthumous work, remarks, "Calculi formed in the ducts of the pancreas, constitute a still rarer disease than the inflammation or enlargement of this gland; I have not myself met with any instance of it in the human body, nor do I remember to have heard any physician say that he has seen this disease."

This case seems to establish the vital importance of the pancreas in the animal economy, for its urgency throughout was determined by the symptoms of local suffering and disturbance in the epigastrum, and finally it appeared, on dissection, that in the completion of the organic disease, was the limit of the patient's life. In seeking to account for this fatal termination of disease in an organ hitherto not much considered by nosologists, we cannot fail to remark on the symptoms which the case repeatedly presented, of disturbance in the great business of digestion, and which seem to have been a necessary result of the progressive obstruction in the excretory ducts of the gland. While the current of the pancreatic fluid, in health the constant associate and natural diluent of the bile, was arrested at its source, the contents of the gall-bladder, acrid and uncombined, were continually distilled on the

* The diseased structure in this case remained for some years in the possession of Mr. Samuel Lane, but has of late been mislaid.

food in its passage through the duodenum : here, then, was a spoiling of material in the supply of the circulation, with the interruption of a necessary process of excretion. Thus followed, in the end, a general prejudice of the blood in its composition, and so came death.

The disorder of the pancreas which has been described in this case was mortal in its effect, by the interruption of the excretory function of the gland ; but there was much injury, in advance, to the patient's health, with very serious aggravation of his sufferings, by the local relations of the diseased structure, and by the peculiar character of its organic change. It lay across the aorta, a tumour of unyielding bony hardness ; pressing, in the recumbent posture, directly on this vessel as on some of the larger veins, and on many of the numerous ganglionic nerves, proceeding from the single floating viscera to their common union with the double column of the brain and spinal marrow. To this remarkable position of the diseased structure, much of the constant uneasiness endured by the patient may with reason be attributed. The more severe pain resembled, in its severity, and in the suddenness and irregularity of its accession, that which indicates the presence of gall-stones in the biliary passages, and, like it, depended probably on a forcible distension of the excretory ducts of the gland. In what was observed of structural alteration in other parts of the body, there was much to spoil, but not enough to destroy life. The occasional " fluttering"

in the lower part of the chest received its explanation in the long-established adhesion of the pericardium. In our ignorance of the peculiar function of the spleen, the coincidence of its different softness of structure with the earthy induration of the pancreas may not be unworthy of remark, especially as the splenic artery and veins must have been compressed in the greater part of their course by the tubular deposits in the gland. Of the extent of the constitutional disorder induced in this case by disease of an excretory gland, the "head symptoms" afford the most decided evidence. Every paroxysm of pain in the epigastrium was accompanied by headache, with giddiness, and other symptoms of disturbed circulation in the brain, amounting as we have seen, in the last fatal attack, to inflammatory congestion of its entire structure. In this respect, the case, as one of disease of the pancreas, indicates for itself an important analogy with those in which cerebral symptoms are developed in sequel of renal and hepatic disease.

REMARKS
ON
T Y P H U S F E V E R.

By JOHN BOSTOCK, M.D., F.R.S., &c.

READ JANUARY 11TH, 1842.

IN offering the following remarks to the Fellows of the Royal Med.-Chir. Society, I feel it incumbent upon me to state the grounds on which I venture to present them to their notice, after having, for many years, withdrawn myself from medical practice. I found my claim to their attention upon the circumstance, that, during the period in which I was engaged in the exercise of my profession, I was in the habit of taking ample notes of the cases that fell under my care, and making daily reports of their progress; these reports, at certain intervals, I abstracted and arranged, making remarks upon them, as to the experience that I had acquired, or as suggesting hints for future observations. Since I ceased to practise, I have endeavoured to keep up my knowledge of the progress of medical science, as far as it could be done,

by reading and conversation, and I may more particularly mention, in respect to the present communication, the advantage which I have derived from an intimate acquaintance with some of the most distinguished medical officers of the London Fever Hospital. I shall only further add, that the statements which I bring forward are derived from my own experience and observation, and that it is from them alone that I have deduced my conclusions; not, as I trust, from any undue self-confidence or arrogant assumption of superior judgment, but from the conviction, that, by this mode of proceeding, the science of medicine is the most effectually advanced.

It appears, from various published reports and documents, that no town in the united kingdom is, in proportion to its population, so obnoxious to typhus fever as Liverpool, where I practised, and, during some years, was attached to the extensive Fever Hospital of that place. My experience of the disease was rendered more ample from the occurrence of two, if not three, of those epidemical invasions of the disease, when not only were the subjects unusually numerous, but the individual cases • peculiarly severe. After these preliminary remarks I proceed to the immediate object of my communication.

The points to which I would beg to direct the attention of the Society are, in the first place, the different varieties which typhus fever assumes, more especially during the occurrence of the epidemics; the nature of these varieties, and the general indications

of treatment which are appropriate to each of them. These varieties I shall reduce to three, which I shall name the asthenic, the cephalic, and the gastric,—names which I have adopted, rather as being suggested from the most obvious symptoms of each species, than from any theoretical opinions as to their nature. The leading characteristics of each I shall briefly state to be as follows. In the asthenic variety, the prominent symptoms are deficiency of power or action in all the functions, great prostration of muscular strength, with an equal defect of nervous energy, the pulse small and weak, the intellectual functions rather enfeebled than deranged: there is an uneasy sensation of languor and fatigue rather than absolute pain; the digestive powers are diminished, the secretions and excretions generally deficient, the temperature of the surface little, if at all, increased, and, in short, the whole of the vital actions, as it were, depressed by some sedative influence. I may further remark, that the invasion of the disease is gradual, so much so, that the patient feels it difficult to fix upon the precise period of its first attack; its progress is slow, and, when the disease ends favourably, a long time elapses before the functions acquire their healthy action. The second variety, the cephalic, may be characterized by great excitability, as indicated by increased nervous action, by morbid acuteness of the senses, and, more especially, of the mental faculties, inducing delirium, occasionally subsiding into coma, by watchfulness, pains and morbid contraction of the limbs, the pulse hard, sharp, and quick, the

breathing laborious, the heat of the surface much increased, the tongue parched and the bowels generally constipated. In the third variety, the gastric, the nervous functions are much less affected, while the stomach and bowels present the most marked derangements; vomiting and purging, with acute pains of the respective organs, the abdomen tumid, the bile and the secretions of the abdominal viscera in a deranged condition, both in respect to their quantity and quality; the tongue is foul, the breath and the exhalations from the body generally are offensive, the urine is loaded with various substances, both saline and mucilaginous, while the patient suffers little absolute pain, the mental faculties are not much deranged, and the heat of the surface is scarcely greater than natural. The pulse is extremely variable, but is generally less affected than might have been expected from the morbid state of the system.

The above account is to be regarded as a description, which, I believe, is not exaggerated, of the three varieties of typhus, in their most strongly-marked form, and it is to be considered as some proof of their actual existence, that they have respectively acquired the popular and not unappropriate names of Low, High, and Putrid Fever. There is a symptom, of occasional occurrence, which I have not yet noticed, and which, perhaps, should have been regarded as indicating a fourth variety of typhus,—a cutaneous eruption on certain parts of the surface, sometimes assuming the form of distinct

papulæ, and, at other times, of clusters of papulæ, forming diffused red patches. But although these eruptions were not unfrequently observed, and even gave to the cases in which they occurred the popular name of Spotted Fever, I was never able to refer them to any specific state of the system, nor to deduce from them any prognostic as to the event of the disease. They were seen in all the varieties, the most frequently in the gastric, and the least so in the asthenic. I conceive, however, that they were much less frequent in the epidemics which I witnessed, than they would appear to have been in the fevers of London, and still more so in those of Paris, during the last few years.* With respect to the three varieties of the disease, although I consider them sufficiently well characterized to be entitled to this separation, yet I must remark, that they were very frequently complicated with each other, and that, although in one epidemic, the asthenic, and in another, the cephalic, or the gastric variety, may have been the prominent form which the disease assumed, yet that they were so intermixed as to be referrible to the same origin, modified by some external agent or some constitutional cause.

The next subject for our inquiry is into the nature

* In this, and in other parts of my paper, where I have employed the term *frequent*, or any words of an equally indeterminate nature, I must remind the Society, that my observations were made before the "numerical method" had been introduced into medical writings, which I regard as one of the greatest improvements of modern science.

of this cause, whether external or constitutional, which, in so remarkable a manner, modifies the nature of the disease ; an inquiry most interesting as an object of pathological research, and most important in regard to the treatment of the disease. But interesting and important as is the subject, I regret that I have little to offer but negative observations. I could not perceive that the different varieties bore any relation to the different temperaments of the individuals, nor to their habits of life or previous diseases. The sanguine temperament and the plethoric constitution were as obnoxious to the asthenic as to the cephalic variety, while nothing was more common than to behold the activity of youth depressed by the former, and the langour of age, as it were, excited by the latter variety. Nor could I detect any external circumstance, by which the prevalence of the different varieties could be explained ; no particular state of the weather, unusual moisture or unusual drought, excessive cold or excessive heat, seemed to favour one species more than another. There are, in the town of Liverpool, abundant circumstances to account for the general prevalence of typhus fever. The construction of the habitations of the lower classes of the population is peculiarly unfavourable to health ; the inhabitants are crowded together in rooms that are damp and dark, and without the possibility of the access of fresh air ; and although the people, during their working-hours, are not subjected to the direful operation of the factory system, they are, many of them, immured in close

and heated manufactories, filled with noxious vapours, and thus breathing an atmosphere in every respect destructive of health of body and vigour of mind. I may also remark, that a considerable number of the labouring population of Liverpool are Irish, who, although in their native country they may have experienced a deficiency of food and cloathing, had the benefit of fresh air and exercise, which they can no longer obtain in their new residences. But these causes of fever are always in operation, and do not, in any degree, explain the different features which the disease assumes at different periods. Our ignorance is therefore compelled to take refuge in some unknown atmospherical constitution or telluric emanation ; but in what this constitution or emanation consists, whether it be of a chemical or a mechanical nature, what relation it bears to the disease, or how it operates in its production, are points respecting which we have not the means of forming even a plausible conjecture.

The next topic, one of great interest and importance, on which I shall offer a few remarks, is the much-agitated question respecting the mode in which typhus fever is propagated, whether it be communicable from one individual to another, and by what medium. On this point I may venture to give a more decided opinion than on some of those which have passed under our review, because I conceive that the means which I enjoyed of forming an opinion on the subject entitle me to speak with confidence. There are two modes in which diseases are

propagated from one individual to another, by contagion and by infection ; some diseases are propagated by each of these modes exclusively, while there are others that are communicated by both of them, thus giving rise to a triple division of diseases, with respect to their mode of propagation. As examples of the three kinds, I may adduce syphilis, pertussis and variola. I have no hesitation in placing typhus in the third of these division ; there is unquestionable evidence, that it is propagated by clothes or bedding that have been in contact with a diseased individual, while it is equally certain, that the atmosphere of the chamber of a fever patient is capable of communicating the disease. With respect to its primary origin, this, like that of syphilis or variola, is unknown, yet we may still inquire whether, although in the majority of cases it is propagated by contagion or infection, it is at the present time, in any instance, originated. The arguments that can be adduced on this question must necessarily be of that kind which have been termed approximative. If, in a great proportion of cases, and where we have the best means of becoming acquainted with all the circumstances connected with the invasion of the disease, we can refer it to contagion or infection, it is a legitimate conclusion, that it is always produced in this way, although, in certain instances, we may be unable to point out its source.

There is another circumstance of considerable importance, which would appear to be still undecided,—whether an individual, who has gone through

the disease in an acute form, is obnoxious to a second attack. My experience leads me to the conclusion, that there is not the same exemption from the second attack, of typhus, as there is of variola or rubeola, but that the constitution undergoes some kind of change, which modifies the second attack, and mitigates its violence. In the most virulent epidemics, and when the wards were crowded with cases of the worst description, although the nurses and attendants frequently experienced a second, or even a third invasion of the disease, I never knew an instance where this secondary disease was fatal.

With respect to the prognosis in typhus, I consider the second variety as, by far, the most unmanageable and fatal, the most rapid in its progress, and, unless at its very commencement, the least under the power of remedies.

The next point, that to which all our investigations ought to be directed, and in which they naturally terminate, is the mode of cure. And, in answer to the question, what is the best method of treating typhus fever, I reply, to combat the urgent symptoms. So varied is the nature of the disease, under the different forms which it assumes, that the remedies and the general treatment which appear almost specific in one variety, in another may be useless or perhaps injurious. I would illustrate this remark by the effect of the application of cold to the surface, and especially, in the form of effusion, as practised by my highly-respected friend, the late

Dr. Currie. This remedy, in certain cases of the cerebral variety, and used in the commencement of the attack, I have seen produce truly wonderful effects, while in the gastric variety it is at least useless, and in the asthenic may be even injurious. The same kind of remark applies to the opposite plan of treatment, the stimulating system, which fifty years ago was generally adopted by the Cullenian school, as well as to the purgative practice, which emanated from the essay of Dr. Hamilton.

So far as the treatment of typhus fever can be reduced to any general rules, it may be stated, that, in the asthenic variety, our object must be to remove the noxious or depressing cause, should anything of this description be apparent and within our power, and to raise or excite the debilitated functions, both of the muscular and the nervous system.

The indications in the cephalic variety are almost the reverse of those in the former, at least in the commencement of the disease ; we have recourse to depletion and evacuation, cold applications and spare diet. This is the only form of typhus in which general bleeding is even admissible, and with respect to this remedy it is to be borne in mind, that it must be employed, in all cases, with great caution and reserve, for even where it appears to be the most clearly indicated, it is occasionally succeeded by a state of exhaustion, which no medical agency can counteract. The third variety, although perhaps the most distinctive in its character, requires the greatest diversity of treatment, according to the

symptoms of each individual case. We begin with purgatives, their quantity and quality being regulated by the state of the stomach and bowels, and of the system generally. Sometimes these alone are sufficient to correct what has been termed the putrescent tendency of the disease, but they generally require the aid of tonics, stimulants or stomachics, as each of these may appear to be indicated, with a most careful regulation of the diet.

With respect to the individual remedies which, at different times, have been employed or recommended in typhus, I must beg to call the attention of the Society to the very remarkable changes of opinion which have taken place respecting them. When I entered upon the practice of my profession, between forty and fifty years ago, wine was considered the great specific for typhus; if the patient could be induced to swallow it in sufficient quantity, his cure was supposed to be accomplished, and when the case ended fatally, the immediate cause was said to be, that he could not bear the necessary quantity of wine. Yet this profuse and indiscriminate use of wine is now considered as neither indicated by the symptoms of the disease, nor sanctioned by its effects. And an equal reliance was placed in the antifebrile virtues of cinchona, which is now, like wine, only occasionally employed, and that in the latter stages of the disease, or, what may be more correctly termed, its sequelæ.

I have already remarked upon the unsatisfactory results which followed the attempt to employ ex-

ternal cold as a *general* remedy for typhus, and the same remark is no less applicable to the more formidable practice of general bleeding. These opposite, although equally energetic modes of treatment were succeeded by an anomalous and heterogeneous class of what were termed Febrifuge medicines, of which I shall be disposed to say, that their chief merit consists in their being harmless, although even this equivocal merit cannot, I fear, always be allowed them, as they not unfrequently tended to derange the digestive organs, and thus retarded the natural progress of the system to its healthy state.

In concluding my remarks upon the nature and treatment of typhus fever, I would beg to observe, that imperfect and sceptical as they may appear, I have not hesitated to bring them before the notice of the Society, in the hope that I may induce others, who have superior advantages for observation, to investigate the doubtful points, and thus be enabled more effectually than it is in my power to do, to draw the line of distinction between those practices and opinions which ought to be at once discarded, and those which require further investigation. “*Non enim sumus ii, in quibus nihil verum esse videatur, sed ii, qui omnibus veris falsæ quædam adjunctæ esse dicamus.*”

CASES OF
L A R Y N G I T I S.

RELIEVED BY

OPERATION.

By JOHN WILSON, M.D.

P H Y S I C I A N T O T H E M I D D L E S E X H O S P I T A L .

READ FEBRUARY 22ND, 1842.

GENERALLY, as the difficulty of respiration increases in laryngitis, so does the danger. The primary obstruction arises from the contraction of the rima glottidis, the secondary from a less quantity of air being thus permitted to pass into the chest. The lungs become only partly expanded, on inspiration, and this deficiency is sought to be supplied by the number of respirations being increased. Thus as the circulation of air becomes embarrassed, the circulation of fluids becomes so likewise. Hence blood or serum infiltrates into the tissue of the lungs where the respiration is most defective; as this infiltration increases, the lungs become less permeable to air, while the other parts, yet enabled to maintain their integrity, having now to discharge the whole respiratory functions of the lungs, become over exerted, and ultimately portions of these, most commonly the margins, become dis-

tended with air, and unable to contract. Thus do the emphysematous, like the œdematous portions, become deprived of their contractile power ; the permeable parts becoming further diminished, and the lungs less able to perform their office ; while at the same time the bronchial irritation is increasing the danger.

Lastly, the blood, from its imperfect circulation through the lungs, becomes vitiated by defective oxygenation ; then its action on the brain produces coma, while its dark venous colour becomes apparent in the livid countenance.

These are the immediate precursors of death. Yet this is the stage which the patient is not unfrequently allowed to reach, before it is judged advisable to make an artificial opening for a freer passage of air ; and when then made, death soon follows the operation, and sooner still when blood from the wound descends by the trachea into the lungs.

Yet in cases where the breathing becomes equally alarming, but where the permeable portions of the lungs may be still sufficient for sustaining life, till time be given (by an operation) for the reparation of the lesions of the other portions, and likewise of the larynx, which then acquires a comparative state of repose,—under such circumstances an operation may never be too late, and recovery may take place, even though respiration may have ceased, if life be not extinct.

Likewise, although the lungs may have sustained lesions, which must ultimately become fatal, life may

yet be prolonged though not saved by an operation. Therefore, in cases where such severe lesions may be anticipated, the proper time for operating should be before they become irremediable.

It should always be borne in mind, that as the time is prolonged for the effects of other remedial agents, the chance of success for this one is proportionably diminished.

Such also were the reasons that first induced me, in the early stage of acute pleuritic effusion, to have a trochar passed into the affected side of the chest, and to draw off at once nine pints of clear fluid;—thus averting threatened death, and at the same time allowing the lung to expand before it had become permanently compressed. The operation was not repeated, neither was any more medicine given. The patient recovered the use of nearly the whole of that lung, and was in good health some years after, and then I lost sight of him. The details were given in a paper read at the College of Physicians in 1837.

It was the result of this operation which first led me to think that an early one might be beneficially performed in laryngitis.

I shall now state two cases, one of chronic, the other of acute laryngitis: both recovered after the operation.

October 9th, 1838.—Elizabeth Slack, age 46, married. Ill ten months; began with a cold, followed by hoarseness, cough, and spitting, from which she has suffered more or less ever since. Lately she

has been getting much worse : now complains of great difficulty in breathing. Feels relief after being a short time in bed, but the moment she closes her eyes, before going to sleep, a loud hiccough comes on, with great difficulty of breathing, and a sense of suffocation as if choked with wind. Has wasted very much. Food, though cut ever so small, sticks in her throat. She points to the larynx as the seat of her sufferings : it is very hard, but not painful on pressure. Bowels regular : cata-menia absent ten months, the date of illness. Not subject to a cough before the stoppage in the throat began. Four years ago had leeches and caustic applied to the tongue, which has been rough ever since. The weather does not affect her, but moving, particularly on going up stairs, distresses her.

11th.—Yesterday she had occasional paroxysms of stridulous breathing, accompanied with strange noises, but at intervals appeared easy, and free from pain, then the air could be heard passing down the trachea and entering the lungs, and she swallowed without apparent difficulty or distress both her dinner and tea. Owing to the noise she made, it became necessary to have her removed from the ward. Soon after, the stridulous noise returned with more intensity, and continued so till 3 o'clock this morning, when she became somewhat delirious, then comatose, and at 7 was covered with a cold clammy perspiration : at 8 her countenance was cadaverous, breathing about twice a minute, with acute stridulous sound : the larynx was immoveable

during the attempts at inspiration. On applying the stethoscope to the larynx and chest no air could be heard to pass. The pupils were contracted almost to points, and insensible to a lighted candle ; she looked like a person after taking a large dose of opium, but she only had had $\text{m}\text{xv}.$ of the tincture in the early part of the night.

The resident medical officers made a small opening through the integuments, just sufficient to admit a large trochar to pierce the crico-thyroid membrane, and pass into the larynx ; the stilette was then withdrawn, and the cannula properly fixed, when air was instantly heard to rush into the trachea and lung ; though prior to this she had evidently ceased to breathe. The respiration gradually resumed its force and frequency. The pulse, which before had been intermittent, became steady, and increased in frequency. The countenance lost its livid appearance, and the whole surface became covered with a warm perspiration. Noon.—She is now conscious when spoken to, swallows with ease, and speaks when the tube is stopped by the finger,—complains of being sleepy.

Afterwards the mouth was made tender by mercury. The difficulty of breathing was relieved by swallowing warm water.

On the 19th the cannula was removed from the larynx, and she breathed through the patulous opening, till she complained of the cold air passing down the trachea giving pain. Next day a curved tube was introduced, as the straight one irritated the back

part of the larynx, but only for a day or two afterwards were any tubes used. For some time she continued to breathe through the opening, which diminished in size as the breathing through it became less. Often she expectorated a rusty-coloured fluid, and at times was able to swallow small quantities of solid food ; but she continued to make the same croupy noise during sleep, although less loud than at first.

The aperture often closed, and remained so for days, till paroxysms of coughing forced it open again ; but during these openings and closings, the wound was never interfered with, for it performed the same part as a safety-valve when subjected to too great pressure. Thus it was left till the natural passages were restored, so as to perform permanently their entire functions, when (November 17th) the wound closed finally. Afterwards she felt more relieved. The cough continued, but the expectoration became of a better colour.

January 21st.—Slight cough with expectoration, breath shorter in damp weather,—can lie flat,—makes a noise during sleep,—general health much improved. Discharged.

At present (three years after leaving the hospital) she has become much stouter, and enjoys good health. The tone and power of voice are natural.

Morris Spillan, age 27, admitted November 14th, 1839. Ill six days, began with a bad cold, cough, hoarseness, and a feeling of choking after working in the rain. These symptoms have been increasing to the present time. He was bled yesterday to

3xvijj ; has taken grey powders. The gums are tender, and there is some mercurial foetor. The surface over the larynx is raw, from a blister. Now, on admission, (1 P. M.) the face is livid and pale. Hoarseness, urgent dyspnoea, and raucous breathing threaten suffocation. Says he can hardly draw his breath,—is unable to swallow solids, and when he exerts himself to drink or even to speak, his distress is much aggravated ; cough frequent, sometimes in paroxysms ; expectoration difficult ; has much pain in the larynx, which is increased by external pressure. Vesicular respiration cannot be heard over any part of the chest, but the raucous sounds are audible. Feels a tickling sensation in the throat. Tonsils and uvula in appearance natural, tongue furred and dry.

After being put into a warm bath and then to bed, a paroxysm came on which distressed him very much. Pulse though quick could scarcely be felt, afterwards it increased in power.

As but little hopes could now be entertained, unless the last resource of art should be employed, I requested the resident medical officers to be prepared, should no favourable change take place, and another paroxysm come on with threatening symptoms, to pass a trochar between the thyroid and cricoid cartilages, as was done in the former case.

Three hours afterwards, as no relief had been afforded him, but, on the contrary, the sense of suffocation and cough were more alarming, laryngotomy was performed, and followed by instant relief. When

he had had time to recover himself, he said, "All's right now." During the operation he had severe fits of coughing, which brought up some bloody mucus.

In the night he had many intervals of sleep, yet at other times the cough was troublesome. At times he lay flat on one side. Respiration imperfect in the left lung, skin moist. Pulse full and frequent. Slight mercurial action was kept up, and small doses of tartarized antimony were given.

On the 16th, the cannula of the curved trochar was taken out for some hours, but it was replaced after a piece of false membrane had come away. When he speaks his finger is placed over the opening of the tube. In general he continued to go on favourably afterwards, the left lung recovering its natural respiration as the expectoration improved. The tube continued to be used, except at intervals, till the 18th December, when it was taken out to be cleaned, and could not be returned. Next morning the wound had closed, and remained so finally, though troublesome fits of coughing followed.

January 27th.—No cough. Voice continues rough and deep; makes a loud noise while sleeping, but most during inspiration. Discharged.

It is now two years since he left the hospital, and he continues in good health, yet the voice has not recovered its natural shrill tone, but remains raucous.

Having made some general preliminary remarks that may be applicable to both these cases, I shall now make a few observations on both of them particularly.

The one may be properly classed as chronic, while the other may be as justly regarded as acute laryngitis. One of nine months' the other of six days' duration. In both, the crico-thyroid membrane was pierced by a trochar. In the first, a straight or common one was used; in the other, I modified the straight into a curved trochar: for, in the first case, though the straight one answered equally well for performing the operation, yet the straight cannula caused irritation at the back part of the larynx, and the open end of the tube itself was thus liable to be obstructed; from these defects, the curved one was free.

So that, generally, in such cases, when an operation may be required, I should give a preference to this over the other ways of performing it, because the part is well marked by the thyroid and cricoid cartilages, and it is free from any large vessels. The wound thus made is the smallest possible, being only just sufficient for the tube itself; a point of some importance, as it lessens the risk of haemorrhage from the wound escaping into the lungs, and accelerating death. Such a case I lately saw, where death took place in half an hour after tracheotomy had been performed on a child. Lastly, having made the perforation with a curved trochar, which is soon done in thin adults, when the part is not ossified, there is no further difficulty or delay in introducing a tube, for that is already done when the stilette is inserted.

These observations are more applicable to adults

than to children ; for with the latter the difficulties become greater as they are younger. In these, the trachea and larynx are less prominent, and too pliant to be held firm ; the parts covering them are soft, and bleed freely, while, at the same time, the struggles of the infant add to these difficulties. Having stated two cases in which the operation succeeded, I shall confine my extracts to two more, as being illustrative of the preceding remarks.

Here, both died after tracheotomy, though, in both, life was prolonged by the operation ; but, in both, the lungs were apparently affected with irremediable diseases, one of a chronic, the other of an acute form.

October 13th, 1838.—Sidney Easton, age 15, was brought into the hospital last night, breathing with great difficulty, and at each inspiration making a loud croupy noise : speaks in a whisper.

Says he has been ill in this way for eighteen months. At first he was suddenly attacked, and he has never since been entirely free from his present complaint : suffers most in the nights, so that he can get very little sleep, and prevents others in the same room with him from sleeping, owing to the noise he makes in breathing ; complains of pain in the larynx on pressure, and in swallowing. No enlargement of the tonsils nor arches of the palate.

He was put under the influence of mercury. Leeches and iodine ointment were repeatedly applied over the larynx. As, however, he was getting

worse and becoming weaker, I wished the operation to be performed, but existing circumstances prevented it at that time.

After this, he had a strong solution of nitrate of silver daily applied, by means of a piece of sponge and whalebone to the epiglottis; also an issue was made on each side of the larynx. But no treatment was of any benefit, and he continued getting weaker, cough and expectoration increasing, when, at the end of two months, the breathing was more distressing, countenance much altered and anxious, was wasting rapidly from the inability to take sustenance, so that he appeared likely to die of inanition. Laryngotomy was then performed by Mr. Tuson. Next day he breathed well through the curved tube, ate some meat and bread, which he had not been able to do for a long time past. Slept three hours in the night, and looks much better to day. Thus the operation gave much relief to his breathing and swallowing, yet he continued to suffer from the cough and expectoration: he became very weak and extremely emaciated. Lastly, a feeling of numbness affected the arms, the hands trembled, pulse became very quick, and he died two months after the operation, and four months after admission. The cannula was retained to the last, but it was taken out night and morning to be cleaned.

Inspection eighteen hours after death.—Mucous membrane about the epiglottis and upper part of the larynx greatly thickened; granular or wart-

like formations over all the inner membrane of the larynx, and some way down the trachea, only smaller here than higher up. Epiglottis so thickened as to have lost its elasticity, and would not close over the larynx when the tongue was pushed back. The right corda vocalis partly destroyed, apparently from ulceration, and the left greatly thickened. Slight granulations over the mucous membrane of the soft palate. The upper parts of both lungs studded with tubercles, many softened, and some cavities. Oesophagus healthy.*

T. H. Dockrell, aged four years, admitted at eleven o'clock, A.M., October 11th, 1841, breathing very laboriously, with much movement of the diaphragm. Face livid and anxious. Eye wild. Pulse rapid and intermitting. These urgent symptoms are said to have come on about six o'clock this morning, though he was observed to have had a hacking cough yesterday. A brother of his is said to have died a year ago of a similar complaint.

Leeches were applied over the larynx. Tar-tarized antimony given, and also a warm bath. Afterwards he seemed relieved, though he did not vomit; but two hours after admission all the symp-

* Life was here certainly prolonged by the operation. But here, as in the next case, both the trachea and the lungs were severely implicated. How far could the fatality of this tubercular phthisis have been protracted by an earlier operation? or if it had been done at the commencement of the attack, eighteen months before admission, would it have averted the development of phthisis?—these are questions for speculation.

toms returned with increased severity, he became comatose and was evidently sinking.

This being regarded as croup, an operation could be looked upon as little more than a means of prolonging life, unless the bronchi should be much less implicated than the larynx and trachea; but of this fact I could have no certainty. The urgent symptoms had existed only seven hours, life was fast ebbing, and there was no time to be lost. Mr. Tuson cut down upon the trachea and then inserted a small curved trochar. The symptoms were evidently much relieved by the operation, and he went on seemingly improving in a remarkable manner till eleven at night,—having slept well, swallowed with ease, and vomited freely twice without any displacement of the cannula. At eleven o'clock, the tube suddenly became obstructed, when all the former symptoms returned, and before the tube could be withdrawn he had ceased to breathe.

Inspection twelve hours after death.—A white false membrane lined the larynx, trachea, and down to the second divisions of the bronchi; beyond that, the mucous membrane was red and vascular. Infiltration of blood in the lungs, but chiefly in the lower lobes.

The child survived the operation ten hours, and was doing better than I had anticipated, till the accident happened.

One half of the children attacked with croup are said to die. Here the state of the lungs and bronchi, independent of the larynx, are sufficiently explanatory of the dangerous nature of this disease.

Thus croup, to which children are liable, differs from laryngitis, which attacks adults ; the first involving all the air-tubes, (the trachea and bronchi,) —the latter, at first at least, only the larynx, so that an opening can be made below the seat of disease in laryngitis, which cannot be done in croup.

In concluding, it may be as well to notice, that when the cannula is taken out to be cleaned, it will often be found lined with not merely an inspissated but even indurated crust, so considerable as to have diminished the calibre of the tube, and impeded respiration. The tube, when in warm water, may be freed from this by the feathery end of a quill. To clear it of mucus, when in the larynx, a more slender feather may be used. It will frequently be easier to return the curved canula, by first oiling it, and then introducing it with the end pointed upwards, and when within the opening to turn it down. A blunt probe made, like the stilette, to pass just beyond the open end of the cannula, may also at times be of service in returning the tube.

P E C U L I A R S Y M P T O M S
AFFECTING AN ENTIRE FAMILY,
AND
TERMINATING IN DEATH.

By JOHN WILSON, M.D.,
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READ MAY 10TH, 1842.

WHATEVER professes to be a science, must have the base of its structure founded on facts. And in every science, any facts relating to it, which may not have been noticed before, ought to be carefully recorded, so that they may tend to explain, or be explained by, existing theories or systems ; if not, by being recorded, they may, with future observations, be conducive to new views or further discoveries.

These are the reasons that induce me to state a series of facts, such as I have never witnessed before, —a group of symptoms, having their origin in an unknown cause, being developed with a striking uniformity, seizing first one, and then another of a family of six persons ; afflicting each individual in their general combination, very similarly ; in their duration differently ; but uniformly terminating in death.

Yet, for these symptoms, I attempt not to assign

a cause, neither have I a remedy to suggest, in the event of the recurrence of such cases. I merely record them as effects,—relate their progress and fatal termination, in the hope that others may hereafter be enabled to throw some light upon the subject.

Maria Arzoni, the mother of a family of three children, was admitted January 26th, 1841. Says, that on new year's day, her husband, a Neapolitan, and manufacturer of ultramarine, was taken with griping pains and purging, which never ceased till death. He was sick at times, but never vomited. The motions were offensive and black. He had frequent cold fits through the day, followed by much fever. His joints, from the beginning, were swollen, not red, but so painful that he could not move on being put into a warm bath.

On the 2nd January, the infant, which died, and she, the mother, an Englishwoman, were seized with violent pains at the crown of the head, and a desire, with inability, to sleep.

During the night, she, the mother, lost her consciousness. Her bowels, from the first, were affected with severe pain, and she felt a frequent desire to evacuate them, when, at times, nothing but fœtid gas, like that of rotten eggs, came away; at other times, the matter passed was like putrid and very offensive flesh. Three days after being first seized, she lost the use of her limbs, and had pain in all the joints. On the sixth day, œdema of the feet, legs and thighs came on. The urine was scanty, very high-coloured and offensive. The water, which

from the first flowed from the mouth, had a "canker" taste, the glands of the neck and lower jaw were tender, and the eyes watered. The discharge of water from the mouth and eyes still continue; tongue very red, clean and transversely fissured. Gums vascular, quite clean, not swollen, but rather contracted. Abdomen large and also tympanitic. Thinks she may be four months gone in the family-way. Complains of general soreness, debility, and lowness of spirit.

Next day after admission, the urine was brown, very alkaline, and had a white ropy sediment. She still has the peculiar taste in the mouth, but most marked under the tongue, of which taste every thing she takes seems to partake. Exquisite sensibility and soreness over all the body. Says the motions are of a better colour than they have been at any time previously. She and also both of the children now wished for some acid drink, which was given them, but her urine continued for some time afterwards very alkaline. She never rallied, but continued greatly depressed, both in mind and body.

A few days afterwards, the legs and thighs became erythematous and shining, the œdema increased and pitted. Purging frequent, and, at times, motions passed involuntarily after taking fluids. No appetite, and every thing turns sour on the stomach.

February 8th.—For two days, itching of the whole body has taken place of the exquisite sensibility and soreness. There is a waved erythema over the

back and abdomen, the skin being variegated by alternate red and white streaks. The erythema of the legs continues, though she has somewhat more use of the limbs.—Complains of thirst, and again wishes for acid drink ; urine afterwards became neutral, but she became more feverish and restless. Mouth and eyes continued to water. A troublesome, dry, hacking cough came on, and continued, which prevented sleep, and caused severe pain in the head. Purging recurred, and she was obliged to keep a bedpan under her ; when the purging ceased for a time, the motions were of a dark drab colour, as they have generally been.

The cuticle of both legs broke, and after the discharge from them had continued for some time, the swellings had much diminished and altogether subsided afterwards ; the urine increasing at the same time. Intellect has always been perfect. Often has only been able to take arrow-root and jelly.

February 25.—Mother's pulse 72, foetal pulse 130.

March 15th.—Gave birth to a very small infant, which only lived twenty-four hours ; its length was $14\frac{1}{4}$ inches, weight $2\frac{1}{2}$ pounds. From this period Dr. Ashburner continued to see her. The pain over the abdomen remained the same as before delivery, and different from any she had felt after a confinement. Puerperal fever supervened, and on the 21st March she died.

Inspection forty-eight hours after death.—A considerable quantity of turbid fluid in both sides of the

chest. Adhesions of the right lung and upper part of the left, which last had tubercular depositions at the apex. Much clear fluid in the pericardium. Abdomen contained a large quantity of turbid fluid mixed with pus and shreds of lymph. Stomach and intestines very much distended with air, but no morbid traces found in them. Liver pale; and throughout the entire body there was a great deficiency of colour. Some coagula in the large vessels. Uterus had not contracted to the size it usually does in the time elapsed since delivery. Spermatic veins of the right side of the uterus thickened, and filled with a fibrinous clot, extending up to the vena cava.

John Arzoni, aged 11, admitted 26th January 1841, was seized a fortnight ago with great pain in the limbs, so that he could not bear to be touched nor turned in bed.—Water flowed out of the mouth, and had a "metallic" taste.

A week afterwards he was attacked with pain in the bowels, but was neither sick nor purged;—the pain went away next day. Now the ankles are slightly œdematos. Jaws so painful that he has much difficulty in opening the mouth. Urine neutral, and has a white ropy deposit. Wishes for acid drink. No watery discharge from the mouth, but he has had a coppery taste in it for two or three days past. Eyes slightly watery. The fleshy parts, but chiefly at the thighs, are extremely tender to the slightest touch. Joints seem to be less painful than the flesh.

A few days afterwards he complained of hunger. Urine became acid, and he ceased to wish for lemonade. Motions natural. Still continued very tender all over. Night sweats about the head and chest became profuse, and there was some bleeding from the nose.

February 5th.—Countenance haggard, pinched and very pale. For several nights past, and especially the last, (though the nights are extremely cold, 10 or 15 degrees below the freezing point) he lay with only a sheet over him. Pulse 130, respiration 56. Has a short, troublesome, hacking cough ; but without expectoration. Intelligence remarkably acute, and has never been impaired. Diarrhoea at times.

Afterwards the legs, thighs and back became more swollen. Though he could not bear to be touched without crying, yet the nurse had to turn him every five minutes.

The last night difficulty in swallowing came on. The sheet only covered him partly, but even that he did not wish for. The diarrhoea recurred within the last few days. Died 11th February.

Inspection twenty-eight hours after death.—Œdema of the legs ; all the muscles remarkably stiff and pale. Tissue of both lungs infiltrated with black blood, particularly the posterior parts, and so heavy as to sink in water. The margins of both lungs were emphysematous. The cavities of the heart contained very black, soft coagula, but without any fibrine. Stomach empty, much corrugated, and

general surface pale, but the depressed parts of the folds were of a pink colour, and about the large arch in one of the depressions was a small excavation, narrow, red, and one third of an inch in length, filled up with a black coagulum ; when washed, the excavation had an appearance somewhat like an ulcer in the process of healing. Near the same part, and within the space of four square inches, were three or four much smaller spots, similar to the above, but without coagula. Not far from the same part was a longitudinal depression, less deep than the first, and much paler, about $\frac{2}{3}$ ths of an inch in length.

The intestines internally had generally a pale appearance, with some exceptions of a more vascular pink colour.

The brain showed no morbid appearance.

Mary Ann Arzoni, age five, admitted 26th January, the same day as her mother and brother, was attacked at the same time as her brother, with, as the mother says, precisely the same symptoms. She cannot bear to be lifted nor moved without crying, yet during a night she asks 200 or 300 times to be turned. Tongue very red, as much so as that of one in severe scarlatina. Slight bleeding from the nose and ears for three or four days past. Complains of cough, tightness in the chest, and hunger. Pulse 120. Urine very alkaline and free from albumen.

A few days, after taking lemonade and oranges, the urine became intensely acid.

A fortnight afterwards, the legs and eyelids were

œdematous. Pain and hunger not diminished. Slept only in the days.

A month after admission the face became more haggard, thin, and quite pale. Swellings of the legs less. Eats meat, and, when not eating it, frequently cries for more. Now she can only lie on the left side, yet she requires the position to be changed every five minutes. She coughs, but never spits, and feels sore all over. For many days she lay without any bed-clothes, and rested very little in the nights. Picks the nose and ears, which still bleed a little. Shortly afterwards, the swellings of the legs had disappeared. She could lie again on either side ; slept more, but the eyes in sleep were never quite closed. Subject to diarrhoea.

March 24th.—Sleeps better, can now lie on the back, which she has never been able to do before, and does not require turning so often. Still more emaciated ; though she takes for breakfast bread and milk. At 10, has wine and water with a biscuit. At 11, an egg. At dinner, a pork chop, and sometimes pudding also. In the afternoon, one or two cakes. At 5, bread and butter, with milk and water. For supper, bread, with wine and water.

May 20th.—For some nights lately she has not required to be turned, and sometimes is able to turn herself a little, which she never could do before. For a month past has slept much better, both in the nights and days, and during that time has not got

thinner, if that were possible. Looks rather better. Continues to take sesquioxide of iron, gr. xv. thrice a-day, which she has been in the habit of doing for many weeks past. Purging ceased.

June 19th.—For some time past she seemed, if anything, to be rather improving: was able to turn herself, and to eat her chop, take wine and eggs with great appetite, and went on with the sesquioxide of iron. The sores on the sacrum and hips were looking better. The intellect was quite clear, as it had all along been. No worse symptoms appeared till within three or four of the last days, when the cough became more troublesome, with some expectoration, and difficulty in breathing.

During two or three of the last days she lay without any bed-clothes over her.

Died 19th June, six months after admission.

Inspection forty-eight hours after death.—The lower lobes of both lungs were congested with blood, and portions of them sunk in water. They contained also some small spots of purulent-like depositions, somewhat similar to those found in phlebitis.

Stomach exhibited some few small spots at the bottom of the folds, like as if the mucous membrane had been partially destroyed, and looked more like a chronic state of abrasion in the sulci, than those noticed in her brother, the traces being more slight.

Mesenteric glands enlarged. The body weighed only $24\frac{1}{2}$ pounds.

Remarks.—The death of the mother was accelerated by parturition, and examination after death showed very extensive disease in both the abdomen and chest, yet probably differing considerably from what might have resulted had parturition not occurred, and had she died, like the children, of the affection common to all of them, and not been sooner carried off by a new disease supervening on the original one.

The abrasions or ulcerations in the sulci of the stomachs of the children have been noticed; but they were so slight, that in ordinary cases they might have been overlooked, without attention being particularly directed to the inspection of that organ. Neither the mucous membrane of the intestines, nor other parts of the abdominal viscera, showed any particular change from the normal state.

But the organ by which death finally entered, appeared in these two to have been by the lungs; for the blood at last seemed to have infiltrated into their tissue, rendering portions of them dark, and so heavy, yet not hepatized, as to sink in water, and resembling considerably the state of the lungs of those who died of the spotted fever in 1837, and which I have described in the Medical Gazette as non-circumscribed pulmonary apoplexy, caused by the blood becoming so altered as to escape from its proper vessels into the tissue of the lungs, thus rendering portions of them (as in these) black, and

so heavy as to sink in water. Yet these parts were not circumscribed by healthy lung, but they gradually shaded off from the heavy dark parts to the permeable portions.

In general the treatment of this family was merely palliative. Among the few trials had recourse to in medicine, I used the saline treatment for spotted fever, but without any apparent advantage. The same may be said of the other trials, excepting the preparation of iron, which certainly seemed to restrain the purging entirely for a length of time, and to have been otherwise beneficial in improving both the colour and strength of Mary Ann, so that she was even able to turn herself a little. To the others iron was not given.

In all the three patients the most prominent features of their sufferings were the general soreness of the fleshy parts as well as of the joints, exquisite sensibility of the skin when touched, and the pain produced whenever they were moved, or their positions changed, according to their so frequently-expressed wishes.

Next may be noticed, the œdema, and particularly that of the inferior extremities, which was present in all the three. The alkaline state of the urine when admitted, and their desire for acid drink. The faces of all being pale, haggard, and so care-worn, as to give to the children the aspect of aged dwarfs, from their hollow cheeks, sharp features, exsanguined and emaciated bodies. At the same

time their appetites were great, and that of Mary Ann ravenous. Yet the mother's never was good, but on the contrary, at times, it was difficult to induce her to take even some trifling sustenance. The mother at different times was much exhausted by diarrhoea, and both the children suffered from it, but less severely. The father also is stated to have been affected greatly by a disordered state of the bowels.

During their afflictions, the intellects of all preserved their integrity, and might even have been regarded as preternaturally bright, had it not been ascertained that every one of the family was reckoned quick and clever. Towards the nurses their tempers were irritable.

Lastly, there was the "cankery" taste of the mother. The "metallic" taste of the boy. The watery state of the mouth and eyes in each. The teasing, hacking, dry cough, common to all, and affecting the children particularly towards the last.

Then their lying sometimes without any covering, even during the coldest season, and when dying objecting to even a sheet; while their flesh was so greatly wasted, and the lungs becoming less and less capable of absorbing oxygen, from the gradual infiltration of blood into parts of their vesicular tissue, diminishing proportionably the permeable portions.

All attempts made by me to trace the source whence originated these affections, resulting in the

loss of life, ended only in varied and conflicting accounts.*

After the admission of this part of the Arzoni family into the hospital, the coroner caused the bodies of the father and infant to be disinterred and examined. A chemical analysis was made. An inquest was held; yet no conclusive evidence resulted.

So that legal, chemical and medical investigations combined, have not been able to unravel the mystery which envelopes the cause of death.

I do not know that the following statement will be able to throw any light on the subject, yet it may be right to quote it.

On the 16th July, four men, who had been employed by Mr. Arzoni in the manufacturing of colours, called at the hospital with the following receipt, which they stated to be in the handwriting of Mrs. Arzoni, and that these ingredients were not used in the trade by them, nor could such be wanted for that purpose by Mrs. Arzoni. But it appears that Mr. Arzoni did not allow the men to become acquainted with all the arts he himself knew in preparing colours. For in the preparation of ultramarine he excelled all others in the trade, yet his method he kept a secret, which was never revealed,

* The family occupied the first floor of a house in Charlotte Street, Fitzroy Square. At the time this family was attacked, no other occupant of the house experienced any deviation from health.

not even to the foreman, an Italian, and it died with Mr. Arzoni.

"Two grains to each pound balsom corosivo, same quantity sala saturnè, same quantity of green coperas, the two latter in powder, to boil three hours after all the ingredients are dissolved."

Probably the first article may be some preparation of corrosive sublimate.

But do not the effects described less resemble those of sublimate than of arsenic?

Since writing this paper, I have received the following particulars obtained at the inquest, and for which I am indebted to the secretary of the coroner.

The husband was Giovanni Arzoni. At the same time that the inquest was held upon him, an inquest was held on his daughter, Maria Catherine Arzoni. The wife and two other children were reported as dying at that time, and it was alleged that the whole had been poisoned by some one of the family.

The inquest was held on the 2nd and 9th February 1841. The age of Giovanni A. was forty-seven years: he died on the 20th January. The age of Maria C. A., two years and five months: she died on the 16th January. G. A., when he gave directions for Maria's funeral, was himself ill a-bed, and so was all his family. He had already lost two children, one aged eight months, the other two years, some months before. Mrs. Arzoni ordered her husband's funeral before Maria was buried. The husband does not seem to have suspected poisoning,

or any non-natural cause for the disease of the family. It is certain that up to the evening of December 30th, 1840, he considered both himself and all the rest to be perfectly well. On the next morning, he, his wife and children, were all ill, he having been so during the night. I understand that the wife was very taciturn at the hospital, about the matters at this period; but on the 31st December she had said to a friend that she "thought that she was attacked with rheumatism." Their food at that season had consisted very much of fruit and plum-pudding. The children's first complaint was of aching in the limbs; the son particularly named this. The father referred his disorder to the chest, but spoke also of pain in the thigh. He sent for a medical man on the 31st December, who attended, and considered that Maria was labouring under inflammation of the lungs.

Giovanni had profuse diarrhoea, and was considered to be labouring under low typhoid fever. He, the professional attendant, had not the most remote suspicion that poison had anything to do with their complaints.

The plum-puddings were made by Mrs. Arzoni, and all partook of them, and a char-woman in the house also ate of one, but without evil. In short, no one in or about the house suspected poisoning.

At the inquest, evidence was given that the husband and wife lived very unhappily, and threats against life passed between them. Though very violent language was made use of at different times

in mutual threatenings and imprecations, yet none of the hearers believed, after the death of the parties, that these quarrels found further vent in *poisoning*.

On Christmas Day they were very good friends.

Post mortem examinations.—Externally, the bodies presented nothing unusual. The stomach of the man was healthy, but slightly discoloured in one part, attributable only to a natural cause. The intestines were healthy. The lungs presented strong evidence of inflammation, both in their substance and in the pleura,—*quite sufficient to account for death*. The lungs were much distended by congestion, and hepatized. The stomach contained a very small quantity of fluid, three table spoonfuls, homogeneous, principally animal matter. The tests manifested the presence of no poison, neither arsenic, corrosive sublimate, copper nor lead. There was slight vascularity of the mucous membrane. There was no morbid condition of any of the viscera but the lungs in the child, and they presented some little congestion only. The stomach and intestines were specially healthy. The former contained two table spoonfuls of fluid, like that in the man.

When the wife and another child died, the coroner declined to hold inquests on them, because, on inquiry at the Middlesex Hospital, I found that the medical officers could not, from the symptoms, &c., add any thing to the evidence, tending to show

that the deaths resulted from a violent cause, and the inquiry would have been useless.

Arzoni made a famous blue colour, the receipt of which died with him. He was not known by his assistant, John Baptiste Zovanni, to use any poisons in his business.

A C A S E
OF
CONGENITAL CATARACT,

WHERE SIGHT WAS ACQUIRED BY OPERATION, AT THE AGE
OF TWENTY-THREE YEARS.

BY R. A. STAFFORD,
SURGEON EXTRAORDINARY TO H.R.H. THE DUKE OF CAMBRIDGE, AND
SURGEON TO THE ST. MARYLEBONE INFIRMARY.

READ APRIL 26TH, 1842.

As I believe the following case of congenital cataract to have been relieved after the longest period of any on record, (the patient having been 23 years of age,) I beg to offer an account of it to the Fellows of this Society.

Fanny Morris, aged 23, a pretty, interesting, fresh-coloured girl, of small stature, was admitted into the St. Marylebone Infirmary, June 1st, 1840, with cataract in both eyes, which she had had from her birth, and she had been blind all her life, excepting having the consciousness of light from darkness. She could see no object whatever, and only knew the difference of one thing from another by the touch, and she could find her way about (where she was familiar) only by groping with her hands, and in other places she was always led.

She could distinguish no colours, and all the knowledge she had of objects around her, and of the utensils she made use of, was by feeling their form with her hands. The eyes vacillated, rolling about, and being in constant motion. The conjunctiva, the cornea, the sclerotic coat and the iris (the last being of a dark brown colour) were healthy, and the globe of the eye perfect. The lens and its capsule were completely opaque, being flaky, and of a white, pearly hue, resembling that species of cataract described by Beer as the capsulo-lenticular variety.

In about a month from her admission into the infirmary, I operated upon her left eye. Having placed her in a proper position, and the head being kept steady by an assistant, and the left eye being perfectly fixed, I plunged the needle just below the transverse diameter of the pupil, so as to avoid the long ciliary artery, into the posterior chamber. I then endeavoured, by carefully scratching the capsule at a particular point, to let out the lens, but the capsule was so hard and so firmly agglutinated to the lens, that I could not separate them : I therefore raised my needle, and dislodged them from the vitreous humour both together, bringing them down to the lower part of the posterior chamber, and when there, I pressed them back into the vitreous humour, out of the field of vision. They both remained embedded in its substance, and the pupil became quite clear. The needle was withdrawn. The eyes were then closed, and a bandage, moistened

with an evaporating lotion, bound round the head over them.

The patient went on favourably, having no pain nor inflammation, nor any other untoward symptom. In a week from the operation, the eyes were opened and exposed : she expressed that she was conscious of more light, but that all was confusion. They were again bound up and opened in another week, but although she was aware of more light, still all was confusion. On the third week, a piece of rag was waved before her eyes, when she immediately said, "I see something moving backwards and forwards." She was asked what it was : she could not tell. She was informed that it was a piece of rag, and that it was white. I then held up my fingers, and she was aware that bars of light were intercepted according to the number of fingers held up, but she did not know what they were, neither had she any idea of colour.

In another week the eyes were again opened, and she saw more distinctly, describing, as well as her power of language would permit, the form of things shown to her. This she might do more readily, because she knew several of them by feeling, and when she could not mention them by sight, she always asked to be allowed to take them in her hand. She also now appeared to have some idea of colour : for when the rag was waved before her, she said, "It is a piece of rag, and it is white." When anything dark also was shown to her, she was aware of the difference. I gave her the card upon which her

medicine was prescribed ; when she looked at it she said, " It is white ;" and, on feeling it, she said, " It is my card." On taking my hat into her hand, " It is quite different ; it is something dark."

At this period, and when she had not as yet seen the human face, (for her eyes were always bound up excepting at the times of my visits,) I took the opportunity of putting a mirror into her hand, and requested her to look at it : she did so ; and was extremely surprised and confused, and, blushing deeply, remarked, " I see something shining, but cannot make out what the other is." She then added, looking again, " I think it is a picture." Being questioned more closely as to what a picture was, she said she only knew it by the description others had given her of it. When she was informed that it was her own face, she expressed great astonishment, and could not comprehend what it meant. When anything shone, such as a pewter inkstand, a silver spoon, &c., she marked the difference from other objects by saying, " It is something shining."

In five weeks from the operation she could describe the dress the nurse wore, besides pointing out the different-coloured ribbons on the head-dress. In three months she had so greatly improved in sight, and in knowledge of objects, that there was hardly anything in ordinary use she did not know ; such as tea-cups, saucers, plates, knives and forks, the inkstand, &c., and when desired to go to the mantel-piece with various articles of this description, there was

hardly any of them she was not acquainted with. She had also gained a considerable knowledge of colours ; the different colours, whether blue, or red, or green, on the plates, she well knew, and on presenting her with a nosegay consisting of numerous different-coloured flowers, she named all of them correctly, with but little hesitation.

Fanny Morris had not only obtained a knowledge of form and colour in so short a time, but, in less than six months, she had an accurate knowledge of distance. If she was told to fetch anything at different distances, she immediately did it ; and when desired to go to the beds of different patients in the ward, she could do it quickly, and without the slightest hesitation, and could point out each by their names. She had also a correct knowledge of measurement : on several occasions I have asked her the exact measurement of one object from another, and her answer has been, " It is so many yards," and she has always been nearly right. When taken to different spots in the ward, and asked the measurement from that place to the wall, or any other particular point, she would stand and look at the place or object fixed on for two or three minutes, and then would give so correct an answer, that (on measuring the distance) it would almost exactly agree with what she had said : this has been done several times, and in different rooms. In addition to these faculties, she also obtained a knowledge of number and time ; she can count by eyesight any given number up to 100 ; and has an idea of time by being conscious of

the time of day, and the hour of the clock. At this present time her eyesight is so good, that she can hem a pocket-handkerchief and see to thread her own needle ; it being only nine months since the operation.

The patient in Mr. Cheselden's case (read before the Royal Society) was 13 years old, and in Mr. Ware's, 7. In the present case the patient attained the age of 23 before the operation was performed. On comparing the three cases, it may be observed that there is a marked difference in each. In Mr. Cheselden's, the patient, after the operation of couching, had not at first the slightest idea of distance : he thought everything touched his eye, at whatever distance it might be held. He could in a strong light distinguish different colours, such, as black, white and scarlet, before he was couched ; but, after the operation, he did not for some time perceive any difference between them. He knew the form of things by feeling, but not by sight : and it was a long time before he gained an accurate knowledge of the difference of objects when he had acquired sight. Everything appeared to him larger than it was : of which by comparison and experience alone he was enabled at last to form a correct judgment. He was surprised that those whom he loved most, did not appear most agreeable to his eyes, expecting that they would be the most beautiful. He had the same feeling as related to taste, and was astonished that a small picture could represent a large body, saying, " It should have

seemed as impossible to him as to put a bushel of anything into a pint measure." He had also but little idea of size, thinking the whole house could not look larger than his own room.

In Mr. Ware's case, the child could distinguish colours, but nothing else. It appears that he acquired sight almost immediately from the operation; for on the second day he could distinguish a table with a green cloth upon it. A day or two after that, he knew a letter that was shown to him; and he could point out several other things, both by name and colour.

In the case here related, the acquisition of sight was very gradual. At first all was confusion. The third week she began to distinguish objects, and to be conscious of the difference of one thing from another; and was aware when a piece of rag was waved before her eye that something was moving backwards and forwards. In a month she knew that a piece of rag was white: that her prescription card was white, and that black was opposite to white, being, according to her own expression when she was shown my hat, "quite different." In five weeks she was acquainted with the difference of colours: for she could describe accurately the nurse's dress, which happened to be composed of three colours, white, red, and blue. Her knowledge both of form and colour rapidly improved, for in three months she could mention any article in ordinary use, and point out the difference in these respects of each, and knew the numerous colours of the different flowers of a large nosegay.

Form and colour are simple ideas. Distance, measurement, feature, number and time, on the contrary, require two operations of the mind ; first, the simple sight of them ; and, secondly, a judgment to know their difference. In distance we see several objects, and judge that one is nearer to us than another. In measurement we see the object at certain distances, and judge of the different distances of one thing from another by the number of yards, feet and inches they are apart. In feature we make a comparison between two or more people. In number we first see each thing, and then count them ; and in time we know there is day and night, and that the whole comprises twenty-four hours, consequently we make a measurement by the division of it into hours, minutes, and seconds. That the patient should so soon have distinguished colours and form we can understand, because it requires only one operation of the mind : but that she should (without being taught) so soon have acquired a correct knowledge of distance, measurement, the distinguishing one person from another, number and time, is very extraordinary. Distance and feature was her next acquirement. In three months from the operation, I told her to go to the different beds of the patients in the ward. The beds I wished her to go to were, the last, the last but one, the third or fourth from her, &c. She did so without hesitation. She could also tell me the name of each individual in the beds, and could distinguish the features of each person, even if twenty people were assembled

together. In rather less than six months, I thought I would try whether she had any idea of measurement. As I have stated before, I took her to different parts of a large ward, and asked her the measurement from one part to the other, at several distances. To my astonishment she answered me with great accuracy. I tried the same experiment in other rooms, with the same result. I then asked her how many things she could count : she immediately went to the mantelpiece, and counted twenty, saying, " If you wish it, sir, I can count up to 100." I inquired if she knew what time meant. She said, " I know the time of day when the clock strikes, but I cannot tell what time it is when I see the clock." These questions I repeatedly asked her, and her replies were always nearly the same. I endeavoured to find out by what operation of mind she obtained this knowledge. She could not tell me. I also tried to discover what her first impressions were on seeing the human face, and other things ; her respondencies were so confused and ambiguous, that I am convinced she had formed no idea. In fact, although so correct in the faculties I have mentioned, being totally uneducated, and brought up with the ignorant, she was of weak intellect, and had never reflected beyond the little occurrences by which she was immediately surrounded.

ON
DISEASES WHICH AFFECT CORRESPONDING
PARTS OF THE BODY
IN A SYMMETRICAL MANNER.

By WILLIAM BUDD, M.D.,
BRISTOL.

COMMUNICATED BY GEORGE BUDD, M.D., F.R.S.

READ DECEMBER 14TH, 1841.

IN 1836, when attending the medical practice of the Middlesex Hospital, my attention was arrested by several cases of rheumatism, in which, as the disease passed into a chronic state, corresponding part of the limbs of the two sides became affected in pairs, in perfectly symmetrical order. In one or two cases, this symmetry was so exact, and was manifested in such minute particulars, that the affection of one limb repeated itself in the fellow limb, not merely with a general correspondence of situation, but joint for joint,—bursa for bursa,—sheath for sheath.

I was, at once, struck with the importance of a fact, having, in itself, so much the form and complexion of a law, and bearing such close analogy, and, probably, near relation to the process of assimilation ;—that process, namely, in the exercise of which, fellow parts separate from the blood, and appropriate matters of identical composition, and thus maintain through life their original likeness, in form, composition, and structure.

Soon after this, I saw M. Bizot's announcement of the same fact, as almost constantly exhibited, in the distribution of atheromatous deposits in arteries ; and from that time, I kept on the look out for instances of it in other diseases.*

These soon came before me in great number and variety, and, in the course of some time, I was enabled to ascertain, that, in the greater number of diseases of the skin, in many diseases of the joints, in the disease of the arteries just alluded to, in diseases of the eyes, and various other structures ;— in short, that in a great number and variety of diseases, of constitutional origin, the lesions constituting the local character of each, exhibit, in their situation and form, a degree of symmetry, which is, often, of the most singular exactness.

Numerous examples of the fact, taken from some variety of diseases, affecting each of the several structures just enumerated, are exhibited in the drawings, preparations, and casts, which I now have the honour of laying before the Society.

In all these examples a very remarkable degree of symmetry may be observed, and, in some, it is almost absolute.

* In my Inaugural Thesis on Rheumatism, which, in the summer of 1838, the University of Edinburgh honoured with one of its gold medals, these facts were brought forward, and their importance shown. The analogy referred to in the text was suggested, and the general occurrence of symmetry in constitutional disease was distinctly surmised. In an Article on Rheumatism which I wrote for Dr. Tweedie's Library, the frequent occurrence of the fact in that disease was mentioned, but without comment, as I had then resolved to make it the subject of a special communication.

Since, then, this fact is common to such a large number of diseases,—and diseases, varying so widely in the aspect of their lesions, in the nature of the textures involved, and in many other important respects,—it must necessarily be a fact of high order, and one which is justly entitled to the rank of a *law*.

But in order to arrive at the true interpretation of this law, it is, first, necessary to inquire into the nature of the cases in which it is observed.

After much consideration, I have been led to divide them into two principal groups: 1st, cases in which the morbid changes depend on fault, originating in the solids affected; and 2nd, those in which the lesions originate in morbid states of the blood.

That disseminated lesions of identical kind may arise from original fault in the solids affected, will be readily granted, and that such fault may affect corresponding parts of the body exactly alike, we have ocular proof in those extreme cases, in which, from some misdirection of the formative “*nibus*,” the defect takes the shape of permanent monstrosity, displaying itself in corresponding parts, with the most exact symmetry.

A case of this kind which has lately fallen under my own notice, and another like it from Cruveilhier,* are delineated in the accompanying drawings,† and

* Anat. Pathol., liv. xxxviii. Pl. I.

† A great number of casts, preparations and drawings, illustrative of the paper, were exhibited to the Society; engravings from a few of which will be found in the plates to this volume.

—ED.

are both highly interesting, whether as regards the repetition of the *same* deformities in the limbs of the two sides, or, still more, that of *similar* deformities in corresponding parts of the *upper* and *lower* extremities ; thus giving, in deviations from the natural form, curious and undeniable sanction for those speculative views of organic analogies, which have long been entertained by a certain class of anatomists.* Symmetrical anomalies of the muscles and blood-vessels, are facts of the same order. As distinct instances of *secondary* morbid changes, belonging to this group, I may mention emphysema of the lungs, which almost always affects both lungs in a symmetrical manner ; the arborescent fatty growths (*lipoma arborescens*) which are sometimes found in

* In apposition with these drawings, I have placed one of monstrosity in the common anemone, in which *all* the repals and petals were transformed into *similar* tripartite leaves. It is only when viewed in connection with monstrosities in plants, that facts, like those recorded in the text, are seen in their true character.

For the rest, these monstrosities affect the body symmetrically, in subjection to the same law, which presides over the symmetrical development of parts in their normal type, a law, which has lately been enunciated by an eminent philosopher in the following words :—

“ We have an idea of symmetry, and an axiom involved in this idea is, that in a symmetrical natural body, if there be a tendency to modify any member in any manner, there is a tendency to modify corresponding members in the *same* manner.”—*Whewell, Philosophy of Induct. Sc. Aphoris.* LXXX.

But what is most remarkable is, that this tendency being so strikingly exemplified in some cases, as in those, for instance, now exhibited, should, in others, be entirely wanting.

joints, more especially in the knees ;* and, perhaps, certain forms of decay in teeth.

In other cases, as in ichthyosis, and in the cartilaginous growths to which the bones of the hands and feet are liable, the limit between this group and the other is less distinct, and cases of this kind and those of humoral origin, run eventually into one another.

In the latter disease, the symmetrical arrangement of the tumours often takes a very interesting form.

Speaking of its tendency to affect a considerable number of joints, Professor Müller says :—

“ One of the most important cases in this respect, is that which came under the notice of Professor Pockels, and of which a representation will be given in the second part of this work. Here, the tumours of the metacarpal bones and phalanges had formed, not on one hand only, but there was a commencement of the disease in the other hand, and the most singular fact of all was, that the feet showed a disposition to become the seat of the same morbid process.”

Ruysch likewise has described some cases in which tumours grew from the fingers and metacarpal bones of both hands and from the toes of both feet, and which were, evidently, instances of the same disease.

* “ A very remarkable specimen of this in both knee-joints of a man is contained in Meckel’s Museum at Halle, and several similar are in the Museum at Bartholomew’s.”—*Müller*.

The second group of symmetrical affections, namely, those of humoral origin, may be again divided into two others: the first of these includes diseases in which the morbid state of the blood probably consists in deficiencies of natural ingredients: the next, those in which it depends on the presence of morbid matter, of special kind, in that fluid.

As a distinct example of the former, may be mentioned those cases in which ulceration of the cornea comes on in man and animals fed on substances deficient in nitrogen, or exhausted by repeated bleedings, and which almost always affects both eyes in exactly similar manner.

Rickets is, probably, also another case in point.

The last group, that in which the morbid state of the blood consists in the presence of foreign matters, of special kind, in that fluid, includes a much larger number of diseases than either of the others.

It is this group which has more especially engaged my attention, and it is made the special subject of the remaining part of this paper.

My first object will be, to show, that, with the exceptions already named, all the forms of disease, of which examples are laid before the Society, depend on the presence of peculiar morbid principles in the blood, which may be regarded as their essential cause.

In support of this, it may be stated as very generally true, that whenever, in constitutional disease, (and all these forms of disease are of that kind,) a

number of similar and special lesions of *organic kind* are scattered widely over a surface, or disseminated among remote members of a system of identical structures,—as joints, for instance,—the affection, whatever its name, depends essentially on a morbid condition of the blood, and, for the most part, on the presence of a special morbid matter in that fluid. For it is quite clear that these lesions, whether leprous patches, rheumatic or gouty enlargements, or atheromatous spots,—to take instances from the diseases before us,—have, in each case, a single and special cause, and the blood is the only medium qualified, by its nature, functions, and diffusion, to become the vehicle of such a cause, and to distribute it thus widely over the system.

The truth of this proposition, as regards the particular group of diseases now considered, is at once illustrated and confirmed by the case of the exanthemata, and other contagious diseases, more particularly syphilis, in which the same scattering of lesions occurs, which offer strictly analogous types of local disease, in the form of eruptions, enlargements of joints, and various other affections, often, themselves, symmetrical in their distribution, and in which we have certain knowledge of the presence of morbid matters in the blood, by being privy to their introduction.

Having shown, however, that symmetrical affections may arise from morbid states of the blood, consisting in deficiency of its natural ingredients, it might be alleged, that some of these diseases origi-

nate in that way. But such a number and variety of considerations will be adduced in this paper, all at variance with the hypothesis that any of the group now treated of depends on a morbid condition of this negative kind, that it might be deemed superfluous to give this hypothesis a formal consideration in this place.

I shall, therefore, content myself with remarking,

First. That morbid states of the blood, consisting in mere deficiency of natural ingredients, seem generally inadequate to effect lesions of the different kinds, exhibited in the drawings, casts, and preparations, now before the Society.

Secondly. The greater number of these lesions consist of various eruptions on the skin. Now, all analogy tends to show, that these eruptions, especially of the kinds of which those now exhibited are examples, depend, not on deficiency of natural ingredients in the blood, but on the presence of morbid matters in that fluid,—as abundantly appears from the instance of the exanthemata, of eruptions from ingestion of unwholesome fish, and various other cases of the same purport.

Thirdly. A considerable number of the diseases included in this group, and of which examples are exhibited in illustration of these remarks, are very generally and rightly regarded as the effect of morbid matters in the blood, which may be considered their essential cause. Of these, gout and rheumatism may be cited as familiar examples.

That none of this group depend, on the other

hand, on fault originating in the solids affected, is sufficiently clear from the known circumstances of their origin, and is further attested by analogy of the strictest kind, and from very various sources ; as has already in part been shown, and will more fully and distinctly appear in the further development of this question.

Relying, therefore, for the present, on the sufficiency of these considerations to sanction the proposition,—that the diseases here treated of, depend on the presence of morbid matters in the blood, I shall now proceed one step further, and endeavour to show, that, in any given case, the special morbid matter which belongs to the particular disease, that may be the object of regard, is accumulated in the seat of each individual lesion, and is there held in union or affinity with the tissue affected ; and that this is, in fact, the primary and essential condition of such lesion.

This second proposition may seem to some an obvious consequence of the first, but on mature reflection, I have thought it necessary to bring additional evidence in its support.

Such evidence may be drawn from various sources, and especially from analogy, which furnishes it in great abundance, and of decisive authority in the numerous facts lately ascertained regarding the action of those medicines which take effect after absorption into the blood.

These facts are strictly analogous to those which form the subject of this paper ; in so far that they

are equally cases essentially consisting in the presence of foreign matters in the blood, so that what is known of one series, in this quality, may be applied to the other with the utmost exactness.

But the evidence afforded by the former is of peculiar value and distinctness in regard to the question before us, because the matters contaminating the blood being possessed of marked chemical characters, and the observer being himself the conscious means of their introduction—their presence in particular parts is susceptible of being determined by direct experiment.

These facts, therefore, stand to those now considered, in the relation of experiment to observation. Now the whole course of recent inquiry has tended to show, that with the exception of some familiar instances of indirect action, which need not now be specified—whenever medicinal or other agents exert a special action on particular structures, these agents become accumulated in the structures thus affected, and may be recovered from their tissue in proper form, and in much greater quantity than from other parts ; and, that when this action takes effect on secreting organs, these substances are found in the fluid secreted by them in much greater quantity than elsewhere ; testifying in this case also accumulation of the active matter in the part specially acted upon.

In proof of this assertion, I need only refer to the valuable mass of exact observations of late made public, on the action of lead, antimony, ar-

senic, iodide of potassium, nitrate of potash, alcohol, copaiba, and other agents—observations all giving evidence of the fact asserted, and collectively showing the very general nature of the relation between the special actions of foreign matters present in the blood, and their accumulation in the part affected.*

In the case of iodide of potassium, this evidence is of the most explicit kind, showing in the remarkable transferences of action, and corresponding transferences of the agent, in substance, which invariably take place during the administration of this drug, the essential nature of the connexion between these two facts.†

Evidence to the same effect, though perhaps less free from ambiguity, in relation to the present question, is afforded by small pox, syphilis, and various other diseases, in which we have other proof that the morbid matter concerned is accumulated in the parts specially affected.‡ And that such is also the case in the affections which form the subject of this paper, may be gathered from the history of many among them.

* See Percy on Alcohol in the Ventricles of the Brain. (An Edinburgh Prize Essay.) Devergie and Guibourt, on Lead Poisoning in the *Revue Médicale*. Mars, 1840. Orfila, in the *Mémoires de l'Académie de Médecine*, 1840. Rees, *Analysis of Blood and Urine*.

† On these particular points I am in possession of many curious and I believe original observations.

‡ In one sense the analogy of these cases is perhaps of more strict application, since the lesions which characterise these diseases often affect a symmetrical distribution.

It will be seen that the greater number of the illustrations of symmetrical disease, exhibited to the Society, are taken from eruptions on the skin. Now many of these are liable, from various causes, to be suddenly repelled ; and it is well known, that, when this happens, at the same time that the eruptions disappear, various disorders, often of serious kind, are set up in internal organs, or affect the system at large.* And what is the interpretation of this fact, but simply this—that the peculiar morbid matter of the disease, which was before detained in the part affected, and held in union with it, being now suddenly loosened and set afloat in the general circulation, has become free to fix on internal organs, or circulating everywhere with the blood to affect the system at large ? This is the only satisfactory explanation of the case that can be offered. In the strictly analogous case of repelled gout, it receives most distinct confirmation.

A very different explanation has indeed been

* The following passage from Willan will suffice to refresh the memory of the reader on this point. Speaking of Lepra, he says—" It sometimes happens that a sudden application of cold, which originally produces the scaly eruption, will likewise cause it to strike in ; and whenever this occurs it produces great disturbance in the system. Vomiting is a symptom that generally if not always precedes the eruption, at the commencement of the disease, and when the eruption is struck in this symptom again makes its appearance."—*Delineation*, p. 178.

For striking instances to the same effect, see pp. 22, 47, 77, 78, 401, of the same work.

proposed, and was, for a long time, very generally received, especially by French physiologists, but it has now been justly, and as generally, discarded.*

I had already been led by these various considerations, to the view here taken of the nature of the individual lesions occurring in those forms of symmetrical disease, which are the more especial subject of this paper, when accident furnished me with a very interesting and decisive confirmation of it.

My attention having been called to a case in King's College Hospital, in which the administration of iodide of potassium, in free doses, had been followed, about the fourth day, by an extensive erythematous eruption, I ascertained, on further examination, that the patches of which it consisted, were distributed on the limbs and trunk, in a perfectly symmetrical manner ; those of one side repeating themselves on the other, with exact likeness of *pattern*, and almost spot for spot. There could be no reasonable doubt that the eruption was the effect of the medicine, for it came out at the exact time when such effects might be expected to occur (that is, before the medicine had found a free outlet through

* Having commenced my medical studies as pupil of the celebrated Broussais, and having continued them for a long time under his guidance, at a period when that remarkable man was displaying his greatest energy as a teacher, and was at the summit of his ascendancy over medical opinion, I may claim for myself a full appreciation of the scope and capabilities of the explanation referred to in the text.

the kidneys), it was attended with the other usual manifestations of the action of the medicine on the surface, which occur at this period, and it immediately began to fade, when the iodide was left off, on account of being the presumed cause of the disorder : and if the established facts regarding the action of this medicine, already referred to, be duly weighed, there can, it seems to me, be little doubt, either, that in the seat of each of the patches of eruption in this case, a certain portion of the iodide was detained and held in union or affinity with the part, and that this was, in fact, the initial and essential condition of the lesion.

Here, then, was an instance of symmetrical affection, depending on the presence of foreign matter in the blood, and in which the point sought to be established admitted of no reasonable doubt, so that, in regard to the question under discussion, this case might be looked upon as affording a verification by experiment, of inferences already drawn from observation.

But a still more conclusive case, is that of the paralysis of the hands, which often follows the absorption of lead, and which is known among house-painters and white-lead manufacturers by the name of wrist-drop. This paralysis almost always affects both hands in similar manner, and is generally confined to a small group of muscles, the extensors of the wrist and fingers. It is therefore strictly, and indeed very remarkably symmetrical.

Now this paralysis does not depend on affection
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of the nervous centres, but is a purely local effect of the poison.

This is evident from the limitation of the paralysis, which is such as could not possibly result from affection of the central parts of the nervous system, as will at once appear from the following passage from M. Tanquerel's work on the poisonous effects of lead :—

"In one of the cases of superficial anaesthesia, there was paralysis of motion of the *extensors* of the wrist and fingers, the sensation of the *back* of the hand and fingers being preserved, while the *palmar* surface of the hand had entirely lost its sensibility, the *flexor* muscles, at the same time, retaining their powers of motion."*

It is quite clear that such a distribution as this, with all its precise and singular limitations, can only result from the local action of the lead on the parts affected.

But this assertion does not rest on mere physiological grounds. Lead has been detected in the palsied parts by direct experiment. This fact has been repeatedly ascertained by M. Tanquerel and by MM. Devergie and Guibourt, and quite recently at King's College Hospital.

In a man who died there, under the care of Dr. G. Budd, of epilepsy from lead-poisoning, and who also had wrist-drop, Mr. Miller detected lead

* Tanquerel on the Effects of Lead: quoted in the British and Foreign Medical Review.

in abundance in the paralysed extensors of the hands.*

So that here we have a case, which is not only, like that of the eruption from iodide of potassium, a perfect type of the group, but as remarkable as any among them for the singular degree of election, and the perfect symmetry exhibited in the distribution of the lesions, and in which the doctrine here advanced receives experimental proof.

The interpretation of these cases may be applied to all others of the same type with the greater certainty, on account of the essential connection they prove to exist between the local detention of the morbid matter and each individual lesion. So that, on these grounds, this is a case in which we are especially warranted in admitting the truth of a general proposition, on the ground of particular verifications.

I therefore regard the twofold proposition, 'That

* Exception may fairly be taken to this fact, because, by a strange omission, the other muscles were not analysed. Nevertheless, I think the case is fully made out. It is proved, on physiological grounds, that the paralysis depends on the local action of the lead. It is proved, by experiment, that the lead is present in the paralysed parts, and the only rational way of explaining their paralysis, is by the presence of a greater quantity of lead in them. The detection of lead in smaller quantity in other muscles, would not, in the least, invalidate the fact. As the lead is conveyed with the blood, it probably exists in all, and, indeed, its presence, in some, is testified by other evidence of its action, namely, violent pain and cramps. It is highly worthy of remark, that in the limbs, these affections also are almost invariably symmetrical.

the symmetrical affections, which form the subject of the present remarks, essentially depend on the presence of morbid matters in the blood,' and 'that the detention of these matters, and their being held in union or affinity with the part affected, is the essential condition of each individual lesion,' as securely established by the foregoing considerations.

In relation to this group therefore, the law now takes a more specific form, and requires a distinct interpretation.

For, according to these views, it is clear that the agency which here determines the lesions to assume a symmetrical arrangement, is in fact that which determines a given morbid matter in the blood, to fix on one particular part in preference to any other of the same structure: so that a given part once affected, the remaining morbid matter, not yet locally engaged, is not free to fix on this or that part, however like to the first in outward appearance, but is drawn to that very part on the opposite side of the body, which is symmetrical with or analogous to the first.

And this agency I conceive to be the same, in virtue of which, in the ordinary exercise of assimilation, corresponding parts of the body separate from the blood, and appropriate *matters of identical composition, and in equal measure*; thus maintaining through life their original likeness in form, composition and structure.

The agency is the same in both cases; the matters acted upon only are different.

But before I proceed, I must answer an objection which may be laid *in limine* to the whole body of facts treated of in this paper, to the effect that there is nothing at all remarkable in the fact that the two sides of the body should be affected alike ; that, on the contrary, such a fact might have been anticipated, and really offers nothing worthy of serious consideration.

It will at once be seen that this objection does not hold, when it is remembered that in many diseases affecting the same structures as those in which the symmetrical diseases occur, and depending like them on the presence of morbid matters in the blood, as in many varieties of diseases of the joints and of the skin, for example, the individual lesions are scattered in most irregular manner, and without the slightest approach to symmetrical distribution. The symmetrical arrangement of such lesions in other diseases does therefore constitute a very remarkable peculiarity, and in what this peculiarity consists, what conditions it may require, and what other peculiarities it may imply, are objects well worthy of attentive inquiry.

And the answer to the first of these questions naturally leads me to the first important deduction to be drawn from the character of symmetrical arrangement itself.

Since this character does not occur in all diseases that depend alike on morbid matters in the blood, and also affect the same structures, its exhibition in those in which it does occur must necessarily de-

pend on some peculiarity in the morbid matters, which are their cause, and that peculiarity must consist in the very definite and elective nature of the affinity, which these matters possess, towards the particular structure they affect. For it is plain that in these cases, when any given joint, or any particular spot of the skin, is affected, the fellow joint or fellow spot becomes affected likewise, because identical with the first in organic composition, and because the morbid matter, from the elective nature of its affinity, is not free to fix on any other.

I have already stated my view of the relation of these affinities to the agencies concerned, in ordinary assimilation.

How singularly delicate their election may be in disease, has already appeared in the paralysis and anaesthesia from absorption of lead, and is still more strikingly shown by some of the drawings laid before the Society, in illustration of these views, in which eruptions on the limbs of one side are repeated on those of the other, sometimes spot for spot, with *electrotype* accuracy.

And here again we find, in the very elective and determinate way in which the action of certain medicines takes effect on particular structures, at once the best illustration and most substantial confirmation of this view of the case.

The very precise limitation of the action of strychnia to the structure named by Dr. M. Hall, the true spinal cord, is a striking case in point ; and is, in all respects, analogous to the facts here treated

of, excepting that the action of the foreign matter is exerted upon an organ which is *single* in its structure.

It admits of demonstration, that the effects of strychnia on the cord depend on its presence in the part.

It now appears, therefore, that the interpretation of the facts treated of in this paper, which has been derived from consideration of their symmetrical character, is by no means limited to them, but applies with equal exactness to all cases in which foreign matters in the blood exercise an elective action on particular structures, whether symmetrical or not.

And these cases include a vast body of facts in pathology and therapeutics. But it will at once be seen, that this quality of matters which act through the medium of the blood, their affinity, namely, for particular structures, is one which is susceptible of great variety in degree, in different cases ; and in fact, in diseases which depend on the presence of such matters in the blood, this variety is seen, in every degree, from that which causes the matter of the disease to affect particular structures, in perfectly symmetrical order, to that of almost absolute indifference.

Gout offers an interesting case as standing midway between these extremes. For although the strongest affinity of the gouty matter is undoubtedly for structures of the fibrous class, yet it is sometimes exerted on other tissues, and its affinity for the fibrous structures, though in a considerable degree

much less perfect than that between the hands themselves, that between the corresponding distortions was much less perfect likewise, the distortion of the feet being far less advanced; a fact which, I may add, has repeated itself in every instance of this disease, that has hitherto fallen under my observation.

Equally interesting illustrations of these laws are seen in the cases of disease of the skin exhibited in the accompanying drawings.* For it will be seen that in the case from which these drawings were taken, the lateral symmetry is of the most absolute kind: the spots on the right elbow and knee repeating themselves on the left elbow and left knee with a likeness of the most singular exactness. The analogy between the elbows and knees is clearly expressed in the fact, that these were the only parts affected with the disease; the six patches exhibited in the drawings being the only ones occurring on the person; and the greater exactness of the lateral symmetry is curiously expressed in the equality, in the number of spots in that direction, and their inequality in the other.

Instances of this fourfold symmetry are mentioned, incidentally, by many writers.

Willan, speaking of psoriasis palmaria, says,— “When the palms of the hand are affected, as above stated, a similar appearance often takes place on the soles of the feet; but with the exception of rhagades or fissures, which seem less liable to form there, the feet being usually covered.”

* See Plate III.

In disease of the arteries, also, interesting examples of this fact are met with. Among others may be cited the following, mentioned by M. Bizot:—
“Une dernière circonstance qui frappera, sans doute, c'est que sur les *radiales*, et les *peronières*, les taches et les ossifications ont apparû au même âge.”*

In the very exact and absolute character of the symmetry occurring in some of these cases, we find the best assurance of the molecular nature of the process by which such effects are realized, and the best proof of their internal origin.

For it is quite clear, that, although external irritation affecting corresponding parts in equal manner, may be the cause of lesions symmetrically disposed, as far as situation is concerned, it nevertheless acts, in far too gross a way, to ensure a repetition of lesions, so exactly alike, in number, form, character, and situation, as those exhibited in many of the accompanying drawings. Effects, such as these, molecular agencies alone can determine.

Facts of similar import are exhibited, more or less distinctly, and in various parts of the body, in all the other drawings and preparations. I may remark, however, that the lateral symmetry is in scarcely any of them so perfect as in the case of lepra just now referred to. The distortion of one hand, although offering a striking resemblance to that of the other, is almost always a slight exaggeration

* Mémoires de la Soc. Méd. d'Observ., tom. i. p. 389.

or a miniature of it ; the pattern of an eruption on one limb is more or less reduced in the other ; the atheromatous spots in the arteries of one side are smaller than corresponding spots in those of the other. (Bizot.) And, in this, we apparently have indication of that want of absolute symmetry between the two sides of the body, which anatomists have already been led to infer from other considerations, so that this very fact, the want, namely, of absolute symmetry in the lesions belonging to these diseases, which might at first view seem a defect, and as tending in some measure to invalidate the law, is probably one of its most interesting exemplifications.

Anatomists had already arrived at the knowledge of these analogies of symmetry and organic composition, by considerations grounded on outward form, and number of parts, but, here, we not only have their reality shown, by a more searching and inward proof, but their degrees accurately measured, as it were, by a delicate molecular test ;—and, in this point of view, these diseases are remarkably interesting.

In this quality, they clearly show also, that the intimate composition of one and the same structure, as of the skin, for example, may differ, materially, in different regions ; and from this, again, it follows that the affinity of any given morbid matter for this structure need not be equally elective in all these regions ; so that while, in some, the lesions may be distributed with the most perfect symmetry, in others it may be much less distinctly defined.

I make these remarks, in order to explain what might otherwise appear to be a very serious anomaly.

Many of the diseases of the skin, which are represented in the drawings as confined to the limbs, sometimes become extended to the trunk likewise. Now, however perfect the symmetry of the eruption on the limbs, it often happens, that on the trunk it is but vaguely marked. The same aspects are, indeed, affected,—still showing the operation of the law in less definite effect,—but the likeness of the eruption on the two sides seldom descends to exact pattern, and scarcely even to equality in number of spots; circumstances which may be clearly accounted for by reference to the consideration just laid down.

Having said enough to show the extensive prevalence of a law of symmetry in diseases of humoral origin, and having pointed out the fundamental condition of its manifestation, let us now see by what circumstances that manifestation may be interfered with.

Three very powerful causes of interference may be easily recognized. Of these, the most influential is febrile movement. Of the effect of this in interfering with the manifestation of symmetry, I have seen, especially in acute rheumatism, a great number of striking examples. Among others, I may cite that of a young man, who lay in the Middlesex Hospital, in 1836, in a severe attack of acute rheumatism, attended with pericarditis and much febrile movement. As long as the fever ran high, the joints were attacked in very irregular order, but when it had entirely subsided, and the rheu-

matism continued in chronic form, without vascular excitement, the lesions assumed a perfectly symmetrical character.

But the disturbing effect of febrile movement is best appreciated in those diseases in which the tendency to symmetry is less determinate and more liable to be set aside by contingent circumstances : of this, gout, as already remarked, is a striking example. Now, the only cases I have seen in gout of any approach to absolute symmetry of lesions,—for a *tendency* towards it is often observed,—have been such as were, for the most part, chronic in their course, and unattended with febrile movement, or much local inflammatory disorder.

In therapeutics, again, the effect which febrile movement has in interfering with the determination of blood-medicines to particular parts, a fact, as already shown, strictly parallel to that now considered, is frequently exemplified. Thus it is well known, that no cause so effectually disturbs the determination of mercury to the gums, as febrile movement, and the same may be said of the specific effects of other *blood-medicines*.* And the disturbing influence

* I have ventured to propose this word as a designation for the large and important class of medicines, whose chief effects take place after absorption, and through the medium of the blood. We are much in want of some generic term by which to designate these medicines, which cannot now be spoken of except by the use of a periphrase, which is often very inconvenient in argument. I do not much like the word I have adopted, but I have been unable to find a better. *Intravascular* might be proposed, but is on many accounts less proper.

of this cause might indeed have been anticipated, for it is quite clear that the exercise of the delicate affinities we have been considering, must, in great measure, depend on equable circulation of the fluid in which the morbid matter is suspended: and what so effectual as febrile movement in disturbing this?

Besides that, this state of the system may act in other ways less distinct to apprehension.

It may be stated then as a general proposition, that, in diseases consisting of a number of lesions having a tendency to symmetrical arrangement, the symmetry will be more perfect, as the course of the affection has been more free from febrile movement or local vascular excitement,—in short, has been more chronic in progress, and *has resembled more nearly in character, the ordinary processes of assimilation*, constituting in this latter relation, a fact of striking import, and giving, in the view which regards these processes, as consisting in the separation of matters of definite and identical composition from the blood, by structures of identical nature, the best authority for the particular theory of these diseases, maintained in the foregoing pages.

Another circumstance of great effect in interfering with the manifestation of symmetry in disease, consists in the influence which mechanical injury, or any other cause materially affecting the organic condition of a given part, has, in determining morbid matters present in the blood to that part, in preference to others of the same structure.

The powerful effect of this influence is sufficiently

familiar to practitioners. In gout especially, this influence of mechanical injury is of such frequent and obvious effect, that M. Cruveilhier has been led, whether rightly or not there is no present need to inquire, to regard the friction and mechanical shocks to which the joints of the feet are especially subject, as the sole cause of the preference of gout for these parts.*

In like manner, parts that have been severely damaged by gout are, from that cause, more liable to further attack; in consequence of which, as Dr. Holland has justly remarked, smaller accumulations of the morbid cause testify themselves in the joints, and thus finding places of outward deposit, seldom give rise to those severe and protracted constitutional disorders which so often precede the earlier attacks of the disease in the joints.

In other diseases of humoral origin, the same law is also frequently exemplified. I have at present a music master under my care, who has for some time past been subject to occasional and slight attacks of rheumatic gout, giving evidence of the diathesis, and in whom a very severe attack of that disease was brought on in the finger-joints of the left hand, by many days' incessant endeavour with that hand to

* "Les articulations qui éprouvent les frottemens, les pressions les plus considérables, sont le siège spécial de la goutte, et lorsque la goutte se fixe sur un grand nombre d'articulations, l'ordre de développement, et l'intensité de la lésion sont dans un rapport direct, j'ai presque dit nécessaire avec le degré de frottement et de pression."—*Cruveilhier, Anat. Pathol.*, liv. xxxiv.

perform on the piano a musical passage, requiring very powerful fingering.

An instance of similar purport, though perhaps less free from ambiguity, in relation to the matter under consideration, occurs in the following case, for which I am indebted to my brother, Dr. G. Budd, and which I am induced to bring forward on account of its intrinsic interest.

A sailor was admitted into the Dreadnought on account of a bruise inflicted on one side of his breech by a fall into the hold of a ship. In the course of some days he left the hospital, having recovered from the injury, but still showing a bruise mark on the breech.

A short time after, he was again admitted with severe febrile symptoms, which terminated in the eruption of small-pox. The pustules were discrete, and very few in number all over the body, except in the exact seat of the former bruise, and there they were extremely numerous, and for the most part confluent.

Now when mechanical injury, or other influential cause of organic change, acts in the same way, in diseases whose lesions have a tendency to symmetrical arrangement, and takes effect on single or unsymmetrical parts, it is clear that the symmetry usual in such cases will be thereby disturbed or entirely prevented.

Most distinct and striking instances of this are seen in the atheromatous disease of arteries.

Of the whole group of symmetrical diseases, this

is one of the most remarkable for the exactness of the symmetry in which the lesions usually occur ; a circumstance probably owing in part to the very chronic course of the affection, and to the exclusion from external disturbing influences, which the arterial tissue enjoys by reason of its deep seat.

But now and then, inflammation occurs in the lining membrane of the arteries, and the ulterior effect of this is, following in this the analogy of other diseases, to cause the atheromatous matter to be deposited in the former seat of inflammation, in preference to other parts ; and as inflammation of the arteries does not generally follow the law of symmetry in its development, the atheromatous deposits which ensue are not distributed in their usual symmetrical order.

This cause of interference with the remarkable symmetry of arrangement so general in this disease, was, I believe, first recognized by M. Bizot, and is very explicitly pointed out in his valuable memoir on the heart and arteries.*

Acting in the same way, local irritation applied to the skin, often causes an irregular and unsymme-

* The proximate cause of this effect of mechanical injury or other lesion is an interesting subject of speculation. It is probable that alteration in the rate of the circulation through parts thus affected, and perhaps alteration in the diameter of their capillaries, are materially concerned in the effect. Of a considerable degree of statis in the blood of such parts, we have certain evidence in their colour, and many other circumstances, and it is not difficult to see how this might act for the effect required.

trical development of eruptions, which, when they appear spontaneously, almost invariably affect the person in a perfectly symmetrical manner. Instances of this, in eczema particularly, must be familiar to every practitioner.

These facts are susceptible of important application in elucidation of the action of medicines ; for it is evident, from the power which they show to be connected with local irritation, or other material organic change, of determining foreign matters present in the blood, to the part which is the subject of such change, in preference to others,* that such medicines as take effect after absorption into the blood, will, whether for good or evil, act more powerfully on diseased parts than on others, by reason of that very organic change they are intended to remedy.

From these views we may also learn the great importance in the treatment of diseases which are liable to shift their seat, of keeping the vital organs as far as possible in a quiescent state, lest by ex-

* A clear perception of the relation between these two facts, (so essential, among others, to a right theory of metastasis,) of the effect, namely, which diseased action has in determining morbid matters in the blood, to parts which are the subject of it, and which is so frequently exemplified in the development of tuberculous disease especially, might have spared us the endless controversy which has sprung up between the humoralists and the advocates of the doctrines of irritation : the former maintaining the almost exclusively humoral origin of all organic diseases, the latter asserting the full power of local irritation to cause every variety of organic alteration.

posing them to causes of irritation, we thereby favour the metastasis of the morbid matter to the irritated organ, and endanger the life of the patient.

The neglect of this important precaution may be, I have several times seen reason to believe, the cause of the transference of gouty matter to the stomach, and the occasion of a fatal event.

I now pass on to the third cause of interference with the manifestation of symmetry, which has presumed relation to the amount of any given morbid matter present in the system. The influence of this, although not a matter of direct observation, is, I believe, not the less real.

It may be conceived to take effect in this way— So long as the amount of any such matter present in the blood remains small, its whole mass may be spent on a single part, but when this amount increases, and becomes more than sufficient to saturate, if I may so speak, the part first affected, the fellow part then becomes the seat of a similar lesion. The part first affected will be, *cæteris paribus*, that for which the affinity of the morbid matter is the strongest.

And, in conformity with this, I have observed, that, in a great number of symmetrical diseases which have fallen under my notice, the affection of one part has begun before that of its fellow, and, in the part first affected, has generally attained a higher degree than in the other. From this it appears also that the interference from the cause now considered is in general temporary only, and resolves itself into an affair of date.

This is very well shown in the following passage from the memoir by M. Bizot, to which I have already referred :—

“ Ainsi qu'en un point du vaisseau, on trouve une fort petite tache jaune, il y a grande chance pour qu'au point correspondant de l'artère symétrique, il en existe, aussi, une ; mais, cependant, cela peut ne point se rencontrer ainsi, parce qu'il n'arrive pas constamment que le début de ces alterations ait lieu des deux cotés d'une manière parfaitement simultanée, et cette explication est si bien l'expression de la vérité, qu'il est infiniment rare de trouver une tache un peu développée d'un côté, sans en voir aussi une de l'autre ; mais elles diffèrent quelquefois en étendue, l'une ayant débuté avant l'autre. Ces légères différences pourront aussi exister quant au nombre des taches développées en deux points symétriques, et quant au degré plus ou moins avancé de leur transformation : ainsi l'on pourra trouver un petit point osseux déjà développé au centre d'une tache jaune tandis que du côté opposé ce point osseux n'existera pas encore, ou bien, au contraire, aura déjà atteint des dimensions plus considérables.”—(Op. cit.)*

* I gladly avail myself of every opportunity of quoting the observations of writers, who, having no speculations to connect with these curious facts, have no motive of overstating them.

The passage quoted in the text, is, in this respect, particularly valuable, as coming from one of the disciples of a school, of which it is difficult to say, whether it be more remarkable for the faithful and scrupulous exactness of its records, or its unqualified distrust and entire renunciation of all speculative considerations.

In other cases, when the supply of the morbid matter ceases, after having produced its appropriate effect on the part first affected, the symmetrical part will remain untouched, and the symmetry usual in the case will fail. How suddenly the production of a given morbid matter in the system may cease, is beautifully shown by those interesting records of the chemistry of the living body, the alternating calculi.

In effect of these several causes of prevention, or interference ; namely, febrile movement, mechanical injury, or other agency materially affecting the organic state of any part ; and, lastly, variations in the amount of a given morbid matter present in the blood,—numerous exceptions to the law of symmetry *necessarily* occur even in those diseases the most remarkable, in general, for the perfectness of the symmetry they exhibit.

Other causes of interference, less open to observation, there probably are, which multiply still more the cases of exception.

If indeed the presumed relation of the agencies concerned in giving these diseases their peculiar character, to those presiding over ordinary assimilation, be real, we shall gain the best view of the nature and influence of such causes, by studying those by which ordinary assimilation is affected. Now among the most influential of these is the exercise of function, and the *wear* of parts ; and in this quality, the greater strain of arteries at certain points, and the pressure and mechanical shocks to which

certain joints are peculiarly exposed, are probably materially concerned, as many writers have suggested, in determining the seat of deposits in these particular structures.

Lesions of innervation, whether temporary or permanent, must also have appropriate effect.

In short, as already hinted, any cause, of whatever kind, materially affecting the organic state of a given part, must materially alter the relation of the blood to that part, for the time being, and thus modify every process in which both are concerned.*

Having now laid before the Society, facts sufficient to show that symmetry of lesions in disease has, in the frequency of its occurrence, in the definite character of its results, and in the nature of the agencies by which they are realised, ample claims to the title of a *law*; and having, further, endeavoured to show that the manifestation of this law depends on a peculiar quality of certain matters, whose presence in the blood constitutes the essential condition of the diseases in question,—two objects of inquiry, of the first importance, at once suggest themselves—

First. What is the specific nature and chemical character of the morbid matter peculiar to each of

* It is interesting to remark that the cerebro-spinal system of nerves, which offers in its peripheral distribution one of the most perfect examples of symmetrical structures, is, except in lead-poisoning, very seldom affected by disease in a symmetrical manner. This fact leads to curious inferences.

these forms of symmetrical disease? (Lepra, rheumatism, &c.) And,

Secondly. What, in each case, is the source of this matter, and how does it find admission into the blood?

These, it will be seen, are most abstruse and difficult questions, requiring for their complete elucidation, long-continued and searching investigation of various character; itself demanding for its prosecution, the most accurate chemical knowledge on the part of the inquirer.

Also in the brief and cursory discussion of them which is here attempted, the considerations advanced are, at once, of very general and presumptive character, and are offered with great diffidence. As the little I have to say in reference to the first of these questions will be elicited in the shape of inference from the discussion of the second, I shall consider them in the order which this relation suggests.

In considering, generally, the source of morbid matters existing in the blood, it may be safely assumed at first (excluding, for the present, one or two examples of infectious diseases which exhibit a certain degree of symmetry in the arrangement of their lesions,) that these matters are either formed in the blood itself in the exercise of its multiform relation to the tissues—or are introduced by absorption from without, in the shape of food or other ingesta.

Under the latter supposition, two cases may occur ; the morbid matter may either be a product of digestion, or may be introduced from without, in proper form. Of this, the case of symmetrical eruption from iodide of potassium, already cited, is an example. The circumstances of that case may, therefore, be further inquired into, with the view of ascertaining how far other cases of symmetrical disease, of humoral origin, may have a similar source.

Now the important circumstance of that case, in relation to this question, is, that when the supply of the morbid matter was withheld, the affection almost immediately ceased : thus showing that the union of the active matter with the tissue affected was not of permanent kind, but liable to be continually dissolved by the vital processes, and the matter, being thus set afloat in the circulation, to become eliminated from the system. And a variety of considerations,* which I need not now allege, have led me to infer, that, with the exception of the few examples of symmetrical disease in which the

* Such are largely furnished by the analogies found in the action of those medicines which take effect after absorption, so fruitful of illustration for every part of this inquiry. For of the great number of these which are detained and become accumulated in the tissues on which they exert their special actions, very few enter into permanent union with these tissues, but far the greater number are soon set free and eliminated from the body. Evidence to the point affirmed in the text is also seen in the frequently sudden disappearance of eruptions under the influence of various causes, often trivial in operation.

lesions take the form of permanent deposits—as in atheromatous arteries—and with that of one or two other diseases, which will be particularly referred to hereafter, and to which, therefore, these remarks do not apply, the same is very generally the case with the lesions of other symmetrical affections: that in the greater number of these, as in the case just referred to, the union of the morbid matter with the tissue affected, is not of permanent kind, but liable to be readily and continually dissolved, by the constant operation of the vital processes.*

And this is especially true of affections of the skin, which constitute so large a group of the peculiar diseases which form the subject of this paper.

Admitting this proposition, the continuance of these affections must, therefore, necessarily depend on continuance in the supply of the morbid matters

* In the application of this proposition to particular cases, some variation in the strictness of its terms must be allowed in consideration of the real variation which must necessarily occur in such complicated effects. Thus the degree of permanence of the union of a given substance with a particular tissue, probably depends as much on the degree of permanence of the elements of the tissue itself, as on the nature of the substance. And how much this varies in different tissues, and in the same tissue at different periods of life, is well known to physiologists, and is admirably shown in the bones, particularly in the different effects of madder on the bones of old and those of young animals. The proposition above stated must not, therefore, be taken in an absolute sense, nor the inferences drawn from it be regarded as absolutely conclusive.

which are their cause. And, as a great number of these affections are of long duration,—for the most chronic are, as already shown, those which exhibit the most perfect examples of symmetry,—this supply must admit also of being kept up for long periods of time. Now, if this condition be viewed in relation to the question under consideration, it will at once be seen, that circumstances very seldom occur, in which a permanent supply of matters, so effectual, and so specific in action, is furnished in the shape of *ingesta*.

And the frequent continuance of these chronic affections in particular cases, in spite of great change in the quality of these, and the circumstance of their often affecting but one of many persons situated exactly alike in regard to food, leave no doubt of the general truth of this inference.

It may, therefore, be considered as pretty well established, that almost the only cases of this kind which are caused by matters introduced in proper form from without, are such as are, like that of the eruption from iodide of potassium, so often referred to, of very short duration.*

If, therefore, the more numerous cases, of chronic course, and long duration, be caused by matters supplied by the *ingesta*, these matters must necessarily be products of digestion. But to this view of their origin, it may also be objected, that the process of digestion, which is so liable to be modi-

* The palsy from lead is, however, a striking exception.

fied in its results by changes in food, and the many other causes of disturbance to which their function is so peculiarly exposed, is not likely, often, to furnish a permanent or long-continued supply of morbid matters, so specific in action, (each causing, through a long lapse of time, the same specific form of lesion) and, therefore, definite in composition, as these matters must necessarily be.

As diminishing the weight of this objection, it must, however, be admitted, that in certain forms of disordered digestion, abnormal substances of very definite composition continue to be formed for long periods of time, notwithstanding great changes of diet, and the employment of medicines known to exert, in general, very powerful modifications on the results of this process. Of this, diabetes offers a very striking example.

Abstractedly, therefore, we can see no reason why the morbid matters of these chronic forms of symmetrical disease may not, in some cases, be formed in this way ; and, indeed, the interesting case related by Frank,* of a young man in whom, for a long period of time, an eruption of nettle rash came out largely over the person, every day at a regular interval after dinner, although spirituous liquors were never taken, was probably a case in point. How

* Willan's Delineations, p. 410. I am inclined to apply the same interpretation to all cases in which articles void of noxious properties, and which are taken with impunity by most persons, produce in others severe general disorders, followed by eruptions.

far a similar origin is probable in other forms of disease, can only be determined by attentive investigation of particular cases.

At any rate, where this happens, it would seem highly probable that the formation of such active principles in the process of digestion would be attended with some direct evidence of disorder in the process itself, or that the affections of which these principles are the cause, would exhibit towards that process some such relation, in point of time, as that observed in the case just quoted.

Now, it is precisely from having remarked the entire absence of any such connection in a great number of cases of many different forms of these diseases, that I have been led to infer, that in the greater number of them, the morbid matter is not a product of digestion, but is formed in the blood itself, probably in the shape of complementary principles, generated in the manifold acts of assimilation, disintegration and secretion, to which that fluid is subservient.

Still, however, the inference drawn from the former of these considerations, is far from being decisive, since other facts show, that agents causing serious mischief in remote tissues may be absorbed from the intestinal canal, without occasioning appreciable symptoms of irritation on its surface; so that here, again, we must rest content with probability, in default of better evidence.

As somewhat strengthening this probability, may however be cited the great difficulty experienced in

the cure of these diseases, and arising, in many cases it is believed, not so much in the want of medicines having a real power over them, as in our inability, from the nature of the case, to introduce medicinal agents in sufficient amount, and with sufficient preservation of their active properties, to tell with effect on processes carried on so deep in the system, and so remote from the surface at which these agents gain admission.

Other facts of more peremptory import will appear in the history of individual cases, to be related hereafter.

But, whether the morbid matters of chronic symmetrical diseases be products of digestion or of processes carried on between the blood and tissues, it will appear at once that these matters are, of necessity, organic compounds, or such among inorganic as are incidental to the human body; a fact which places them in contrast with those inorganic compounds which, like iodide of potassium, gain casual admission into the system, and which gives us a footing, from which to go forward on more specific inquiry into their chemical nature.

Among such of these matters as are clearly generated in the blood, an important division may be made,—into such as have no power within themselves of multiplying in the blood, independently of their original source, whose amount therefore is limited by the supply from that source, being, in this respect, on a level with simple chemical substances, introduced from without; and

such as have, on the contrary, a power of self-multiplication, and whose ultimate amount may have no proportion to that of the original supply : these latter also being, for the most part, susceptible of transmission, with their active properties, from one organism to another.

For although, in the casts and drawings laid before the Society, the instances taken from the group of contagious diseases are few, and although many of the remarks in the preceding pages apply less strictly to them, I may now state, that many of that group, and especially the chronic forms of disease, exhibit a very manifest degree of symmetry in the arrangement of the lesions by which they are characterised.*

But this symmetry is, in general, far from being so perfect as in the group of diseases already treated of ; for while in these, corresponding joints are often affected so alike, that one is almost a model of the other, and eruptions repeat themselves on corresponding surfaces, almost spot for spot ; in the others, joints (as in syphilis, for instance) are seldom affected in *pairs*, and eruptions are symmetrical, in so far only as affecting the same aspects, their likeness seldom descending to exact pattern, and still less to equality in number of spots.

And this is no more than might have been

* Whether the symmetry often observed in the spreading of erysipelas fall within the law before enumerated, or is a fact of another order, (contamination by contiguity,) I am not prepared to decide.

expected, whether we regard the great variety of tissues on which most of these poisons exert their action, giving evidence of less determinate affinity, or the remarkable peculiarities of their nature,—so unlike, in essential properties, to common chemical agents, and therefore less likely to be influenced by those agencies which regulate the actions of the latter.

Nevertheless, in syphilitic diseases of the bones, and in gonorrhœal rheumatism, a very remarkable degree of symmetry is often observed, and the same is true of syphilitic diseases of the eyes.

Apart from all these, and still more remote in nature from common chemical agents, is the morbid element of cancer. This element is, in fact, not a mere chemical agent, but an organized form, possessed of vital endowments.

And from the almost perfect agreement between the cancer element and globules of pus and mercury, in the manner of their dissemination, after they have found their way into the blood, it may be clearly shown, that the distribution of disseminated cancer is, in great part, determined by mechanical conditions.* And although this leads to a certain kind of symmetry in arrangement, since these conditions must be alike in double organs, it is sufficiently obvious, that the fact is different in its nature, and in that of the agencies by which it is

* See a paper by the Author, "On the Pathology and Causes of Cancer," in the *Lancet*, for May the 21st and 28th, 1842.

determined, from those which form the subject of these pages.

With the exception of some brief remarks, in the shape of comment, on one or two cases to be related in conclusion of this paper, I here close what I have to say on the specific nature and chemical character of the morbid matters of symmetrical diseases.

I much regret the very general and doubtful character of the little I have had to communicate on these points ; and the more, because it is evident from all analogy, that in diseases which are the effect of abnormal matters in the blood, it is the specific nature and chemical character of these matters which *mainly** determine the course and character

* I say *mainly*, because it is evident that in this variety of effect other conditions are concerned. That of seat in particular, though in itself partly determined by the specific nature of the cause of disease, has close relation to the action of remedies. The twofold way in which the action of a given remedy is governed, on the one part by the specific nature of the cause of disease, and on the other by the seat this disease may affect, is most clearly illustrated by the curative effect of iodide of potassium in syphilitic periostitis. It is certain that the specific nature of the poison has essential relation to this effect, for iodide of potassium is of little or no efficacy in periostitis from other causes, as I have myself had frequent opportunity of ascertaining. The relation which seat has, on the other hand, to this effect is shown by the fact that this medicine is of little or no efficacy in syphilis affecting many other textures. It cures the periostitis, but does not remove the syphilitic taint.

In the relation of colchicum to gout, evidence of the same purport may be had. All blood-medicines must be regarded in this

of the affection in each specific form of disease, and which governs the relation of remedies towards it ; and especially of such as exercise a specific curative action.*

And in an exact knowledge of the chemical constitution of these matters, we shall probably find the best clue to their source in the living economy.†

double point of view. From want of clear perception of this important distinction in practice, much misapplication of remedies occurs, to the disappointment alike of patient and physician.

* It is in this direction we must look for the largest and most important additions to our knowledge of the nature of inflammation. In all that concerns the state of the circulation in inflamed parts; the changes the blood undergoes in the proportion of its staminal principles; the organization of effusion; the formation of pus; and, finally, the relation of antiphlogistic and other general treatment to these several conditions,—our knowledge is already tolerably precise, and will scarcely admit of much greater advance. But looking at inflammation, as originating in disturbance of the normal relations between the blood and a given part, it will at once be seen that this disturbance may be effected in two ways, by modification begun in the blood itself, or in the part affected, and abundance of facts might be adduced, to show that inflammations of the same structures, originating thus differently, differ widely from one another, both as regards their course and general character, and the relation of remedies towards them. But the more we reflect on the circumstances attending the invasion and after-course of inflammatory diseases in general, the greater will the number appear of those which are of humoral origin, and depending on contamination of the blood with morbid principles.

Of the exact nature of these principles in each species of disease, so important in its influence on the nature of the case, we are, for the most part, entirely ignorant.

† The ingenious idea of tracing abnormal principles to their

The attainment of this knowledge is indeed a task beset with difficulties of no ordinary kind, but nevertheless one which falls quite within the scope of direct investigation, and, moreover, lies in the precise direction which chemical inquiry is at present taking. We need not therefore despair of seeing in time its full accomplishment.

source in a given tissue by means of analogy in the chemical composition of the two, originated, I believe, with Dr. Prout, and many novel theories are founded upon it in his profound and important work on stomach and urinary diseases. But seeing the close analogy in the chemical constitution of many of the animal tissues, and bearing in mind, also, the great freedom and latitude of chemical transformation, which is the peculiar characteristic of organized compounds, freedom allowing of great variation of result under slight variation of conditions, it may fairly be questioned, how far this analogy is a safe ground of deduction, especially as regards the origin of *organic* compounds. Dr. Prout indeed does not trust to it alone, but states that he has other reasons for placing reliance on the indications thus afforded. These reasons he does not explicitly declare, but one of the most important seems to be derived from the supposition, that various lesions of the skin, and of the joints, may be regarded as processes for the formation of certain of these compounds. But if the view of the nature of these affections maintained in the text be correct, they must be regarded, not as the *source* of abnormal principles, but the *effect* of such, generated elsewhere. Until, therefore, more certain authority is shown for relying on analogy in chemical composition as evidence of the origin of disorganized compounds in particular tissues, this analogy must be received as suggesting research, not supplanting it: nevertheless, this is one of the many valuable clues to discovery, which we owe to the sagacity of this profound inquirer.

I shall now ask permission to relate some cases in illustration of the views developed in the foregoing pages.

Elizabeth Alford, aged 18, is affected with lepra over a large surface of the person. The arrangement of the eruption is as follows :—

The dorsal aspect of the arms and forearms thickly set with leprous spots, more crowded than elsewhere, on a line forwards from the point of the elbow, where indeed scarcely any intervals occur between them. The eruption vanishing upwards towards the shoulders, and downwards about the wrists, there being however a few imperfectly-formed spots, not covered with scales, on the back of each hand.

The palmar aspect of the whole limb almost fair, and only sprinkled with a very few imperfectly-formed spots. The front (corresponding) aspect of the leg and thigh beset with leprous spots in the same manner of arrangement, and within corresponding limits ; the eruption occupying the front aspect only, and most crowded in a line downwards from the patella, vanishing upwards towards the groin, terminating below at the ankle, with the exception of a few imperfectly-formed spots on the instep (illustrating in these several circumstances the symmetrical analogy of the upper and lower extremities).

The eruption on the right arm, and right leg, offers an almost exact agreement, in its arrangement

and limits, with that on the left arm and left leg. On these limbs is the thickest of the eruption. On the trunk there are a few spots widely scattered, and without very evident symmetrical order.

On the face also there are a few imperfectly-formed spots, not strictly regular in their distribution, though offering a very manifest degree of symmetry in their general arrangement.

In the front of the ear, at the termination of the hairy scalp, on each side, are two large oval spots, one the exact likeness of the other.

William Alford, aged 17, and brother of the last, is also the subject of lepra, which does not however cover a large surface.

There are a few isolated spots on the arms and legs, the spots on the limbs of one side corresponding to others similarly situated on the other.

On the trunk, the spots are numerous, but mostly isolated, and offering a very manifest degree of symmetry in form and arrangement. The same of a few on the face. On each eyebrow is a series of spots disposed in lineal manner, and following the course of the eyebrow. One series an exact pattern of the other.

In both these persons the lepra appeared a few years ago, without apparent cause. They do not remember the exact order in which the eruption appeared on the series of parts it now occupies.

General health good, and to all appearance no-wise affected by the disease. Digestion easy, and not subject to disorder. Once or twice the lepra has

disappeared during the internal use of liquor arsenicalis, but has again returned soon after the medicine has been given up. During the temporary disappearance of the eruption, the health continuing good.

The father of these two persons was also, when young, the subject of lepra, covering a large surface of the body. Under the continued use of liquor arsenicalis, and sea-bathing, it entirely disappeared, and has not since returned to any great extent, though a few isolated patches appear from time to time about the elbow, and remain for a week or two.

Does not know what was the cause of the disease in his case, nor whether similar eruptions had before occurred in his family. Has three other children younger than the leprous subjects, but past the age at which these became so. These three have no eruption of any kind, nor any disorder that may be regarded as equivalent, being in all respects healthy. All these persons live together, and use the same food. None of them take sugar habitually.

Now it is evident from the circumstances of this history, that the lepra-matter was not in these cases furnished ready-formed in the ingesta.

The disease was, in fact, as it so often is, hereditary ; showing, that the formation of the morbid matter depended on original structure, and on the actions of the body, as governed by this structure, upon the materials appropriated by it.

I shall not repeat here the arguments already

brought forward, in the general discussion of this question, by which it is rendered highly probable that this matter is not formed in the process of digestion, and introduced into the blood by absorption, but is generated in the blood itself, in certain of the manifold acts of assimilation, or disintegration, which are accomplished in those deep recesses of the system, where the blood and tissues meet in molecular relation.

But admitting this point, we are entirely unprovided with a clue, to trace the morbid matter further to a specific source in the economy.

It will, however, be asked in particular, Is not this matter formed in the seat of each individual lesion? This is a question which repeats itself for every form of these affections, and the answer to it is implied in the view taken of their nature in the foregoing pages. For, as an essential part of that view, they are all regarded as affections caused by special morbid matters, not originating in the seat of lesion, but supplied from another and independent source, of which, for the sake of illustration and distinctness, the case of eruption from iodide of potassium, and that of paralysis from lead, may be alleged as unequivocal examples.

I need not, therefore, now bring forward the additional evidence to the same effect, which analogy furnishes, in great abundance, in the history of gout, and other diseases of humoral origin.

In the instance of lepra itself, the circumstances usually attending the invasion of the disease tell

strongly in favour of this view. For the appearance of the eruption is almost invariably preceded, for many days, by severe symptoms of general disorder. The eruption at length comes out, and the general disorder at once subsides. Now, if we seek from analogy a rational interpretation of these facts, there will scarcely be a doubt, that accumulation of the lepra-matter in the blood is the cause of the general symptoms. So long as this matter accumulates, and continues to circulate in mass with the blood, it is free to set up disorder in the system at large ; but as soon as it is appropriated by the skin, the general disorder at once subsides.* Reason, and

* I cannot forbear from calling attention to the very close analogy between this fact and that which has received the name of *toleration*, in the case of certain medicines which take effect after absorption into the system. It is well known that certain of these, so long as they continue to accumulate in the system, and circulate in mass with the blood, set up very serious constitutional disorder, but as soon as they become derived to a particular part, on which their action is then specially exerted, especially when this part affords an outlet from the body, the constitutional disorder ceases. I could adduce experiments of the most exact kind, instituted on agents of marked chemical character, showing that this is a true statement of the case, and the real relation of the phenomena ; most valuable, therefore, for the very distinct illustration they afford of the views in the text.

But what is most remarkable is, that when once this direction to a particular part has taken place, that very fact becomes a cause, just as a nucleus causes accresion of similar crystalline substances around it, for all future supplies of the same matter to be drawn to the same part, so that, however free the supply may afterwards be, there is less danger of accumulation in the general mass of blood, less danger of general disorder. Familiar exam-

analogy of the strictest kind, concur to show the truth of this interpretation.

On the first formation of the lepra-matter, therefore, and while it is accumulating, there is no evidence of any mischief going forward in the skin, and no ground for a presumption, even, that it originates in that tissue. And there certainly is no reason to suppose that the source of this matter is, afterwards, different from that it had at first.

And circumstances of similar import may be remarked, in the invasion and course of other symmetrical affections of the skin, and which lead, consequently, to the same inference.

I may now add that the arrangement of the leprous eruption in the person of Elizabeth Alford, both as regards the parts most affected, and the symmetry of distribution, is not a rare or exceptional case, but that which is most usual in the disease. Willan had remarked this, and the symmetrical arrangement of lepra is, in particular, often adverted to in his great work on skin diseases ; although he drew no inference from the fact, but merely spoke of it

ples of this are seen in the administration of mercury and tartar emetic.

In the same way, when the specific matter, which is the cause of a given disease of the skin, has once become directed to that tissue, all future supplies of the same follow the same direction. Indeed, this a fact of very wide-spreading and important effect in pathology and therapeutics. But this fact must itself be governed by another, more fundamental, and the discovery of which will probably give us clear insight into many of the most obscure phenomena of disease.

as a curious circumstance. His words are these:—
“The lepra, almost constantly, affects both sides, appearing at each elbow or at each knee about the same time, and extending from thence along the limbs in a similar manner.”* And having noticed the same fact in other scaly diseases, he says in another page, when speaking of psoriasis gyrata,—

“The uniform disposition of these patches is singular—I have seen a large circular one situated on each breast, above the papilla, and two or three others of serpentine form, in analogous situations, along the sides of the chest. The back is often variegated in like manner, with convoluted letters similarly arranged on each side of the spine.”†

The three cases of lepra above related, are, according to the theory of those affections maintained in the foregoing pages, further interesting, as examples of the formation of identical morbid matters, of specific kind, in several individuals of one family, differently situated in regard to age, sex, and other influential circumstances.

Prurigo, lichen, and many other cutaneous affections, abound in examples to the same effect. The same fact is seen, in a different form, in those very remarkable instances in which urinary calculi, of rare kind, and of identical composition, occur in several members of the same family; instances, in which the continued elimination of the same chemical matters, *in substance*, leaves no doubt of the nature of the case; and, on this account, valuable

* Delineations, &c., p. 117.

† Ib. p. 163.

for the very explicit illustration they afford of the more obscure examples of the same fact, which form the subject of this paper, and in which this kind of evidence is not to be had.

The most interesting cases of the kind referred to, are, perhaps, those of cystic oxide calculi ; on account of the rareness and peculiar nature of the material ; but those of oxalate of lime are scarcely less so, seeing the great variety of conditions, in regard to age, and other important circumstances, under which they occur.

All cases of this kind are of peculiar interest to the practitioner, whether regarded as evidence of the predominant effect of original constitution over external circumstance, in many serious forms of disease ; or as giving explicit reason, *in direct measure of this predominance*, of the peculiar difficulty experienced in their cure. I have in my possession a considerable number of cases, of other forms of symmetrical skin disease, and, in particular, of eczema, which is especially remarkable, for the exactness of the symmetry it often exhibits.

Many of these cases are of much intrinsic interest, but as they do not serve to open any general views beyond those already developed in the foregoing considerations, I will not trespass on the indulgence of the Society by relating them.

But, before I leave the subject of skin diseases, I must touch upon a question which is naturally raised by the whole tenour of the foregoing observations.

If these various affections of the skin be the effect

of specific principles in the blood, are these principles, of necessity, specifically different for each of the *nominal* types of skin disease, for eczema, and for different forms of scaly disease, for instance?

The case of syphilis is decisive of this question; for, in that disease, it is well known that all the *nominal* types of authors may be the effect of a poison of a single specific origin. In the history of skin disease of other origin, there is evidence to the same effect, of which the frequent transition, *in situ*, of lichen into psoriasis guttata, (that is lepra,) is a very distinct example.*

But the same facts also show, that if different types of skin disease be the effect of one specific cause, types *nominally* the same may also be the effect of matters *specifically* different. It is the knowledge of the specific nature of these matters, in each particular case, that alone can give us clear insight into the nature of these affections, and until we have attained that knowledge, we shall constantly be confounding diseases essentially different, and making distinctions between others where no essential difference exists.

That we are daily committing this twofold error, seems alike probable, from the equal and remarkable efficacy of certain remedies in diseases of the skin, very different in *nominal* type, and, on the other hand, from the signal success attending the employment of a given remedy in one case, and the utter failure of the same remedy in another, bearing the

* Willan, p. 153.

same name in our present systems of classification.

And it is further evident, that until we shall have discovered the relation of these remedies to each kind of these specific morbid matters, it will be entirely out of our power to collect any precise experience touching their efficacy.

From these remarks, it sufficiently appears, that the only true and natural classification of these diseases must, eventually, be constructed with reference to the specific nature of the morbid matters which constitute their essential cause, and the best cognomen for the generic groups thus formed will be derived from the name of the specific principle common to each group.

Of the way in which this method may be applied to our present nomenclature, the example of syphilis affords an excellent precedent, and of the degree of light the discovery of the specific causes of these affections may be expected to throw upon their treatment, that same disease gives a striking illustration.*

I now proceed to give an account of some instances of symmetry in diseases of other structures.

* How forced and unnatural is the present system of classification, is strikingly shown in the fact, that scabies is placed in the same category with many skin diseases of internal origin, merely because characterised by a vesicular eruption.

Symmetrical Affection of Joints and other parts.

William Godfrey, aged 70, formerly employed in a serge factory. About seven years ago was confined to his bed and room for several months, with rheumatism, affecting all the joints of his limbs. They were much swelled, stiff, and painful, and for some time, to begin with, there was considerable fever. Does not remember whether or not the joints were then affected in any definite order.

During the course of the illness, his eyes became very painful and inflamed, and, eventually, affected with cataract.

The rheumatism gradually left all the joints, but those of the *hands* and *feet* (analogous parts). In these, it continued many months in chronic form, causing much distortion.

The disease came on without apparent cause. Never before had it, or other severe illness, but has always been delicate and ailing.

Suffered much, some years before, from bleeding piles, but these had become quite well some months before the attack of rheumatism.

Rheumatism not, he believes, a family complaint. Always of temperate habits.

Present state.—The only joints now affected are those of the hands and feet. The hands exhibit distortion, in character exactly like that of the cast shown in Plate II. The distortion of the feet less advanced. Both eyes affected with cataract.

The distortion of the right hand is greater than that

of the left, of the right foot greater than that of the left foot. The cataract of the right eye more complete than the left, there being total blindness of the right eye, while the left still admits light.

In this case there are two facts which demand particular comment: the first is the distinctly rheumatic origin of the cataract, showing, according to the views here adopted, that this affection may be the effect of a specific morbid matter in the blood; a fact, I believe, already recognized by the profession, and, which many circumstances concur to render probable, is very general in the disease.

Another fact, which might become of great interest, if not mere coincidence, (and several other instances of it, which have fallen under my notice, lead me to think it was not so,) is the more advanced degree of the disease, in all the parts affected on the right side than in those on the left, indicating, under the condition before named, a material difference of organic composition pervading half the body; placing these affections as tests and measures of such difference, in a very curious and striking point of view; and, lastly, drawing still closer, in this particular case, the connection between the cataract and the joint affection.

I have accurate notes of many other cases of this disease, still more remarkable than that just related, for the exact symmetry of their lesions.

On looking over the series of casts and drawings taken from them, one cannot fail to be struck with the singular likeness and uniformity of the

distortions they exhibit. In this, we have the best proof of the very special nature of this disease, for no proof of the speciality of a disease, and thence of its cause, is so striking as a uniform tendency to affect the same series of parts in the same order, and to effect, in individuals not otherwise related, structural changes of these parts so singularly alike, as those shown in the casts and drawings now submitted to the inspection of the Society.

The principal structural change found in cases of this kind is more or less complete absorption of the articular cartilages. In sequel to this, the form of the heads of the bones becomes much altered, and ankylosis or dislocation follows. No deposits of lithate of soda ever occur in the affected parts, and from this we may safely infer that the disease is essentially different from gout.

I have no other remarks to offer on this affection, except that it is much less prone to shift than gout or common rheumatism, that it is more common in women than in men, that it seldom comes on before middle age, and that it is occasionally excited by the puerperal state. This fact was remarked by Cruveilhier, and the person from whom the cast represented in Plate II. was taken, offered an example of it.

In conclusion, it may be well to give a summary of the leading observations dispersed over the foregoing pages.

It will be seen, that the subject of inquiry was opened with a general survey of the different forms under which deviations from the normal state affect the body symmetrically.

Several cases, entirely different in nature, were recognized, but admitting of division into two principal groups, namely, deviations arising from original fault in the solids, and those which originate in morbid states of the blood.

Of the former, symmetrical monstrosities were taken as an extreme case, and a fit type;—a case already considered in science, and when viewed in connection with its manifestation in animals, plants and crystals, constituting a mysterious order of facts; quite insusceptible of further analysis in the present state of knowledge, and inaccessible to all known speculation.

The latter group, that of cases originating in morbid states of the blood, was further divided into those which arise from the presence of morbid matters, of special kind, in that fluid, and others which depend on deficiency of its natural ingredients. A large number of facts were seen to fall under the former description, and these facts were made the express subject of the foregoing inquiry.

In endeavouring to analyse the conditions, in virtue of which the body is affected, symmetrically, in this case, it was first established, that in any given disease of this class, the morbid matter concerned is detained in the seat of each individual lesion, and is there held in affinity with the part affected.

And this at once led to the following deduction : That the agency which determines the lesions to occur in symmetrical form in these cases is, in fact, *that* which determines certain morbid matters in the blood to fix on a given part, in preference to others of the same structure.

And it was further seen that this agency could be no other than a special affinity between the morbid matter and the tissue affected ; affinity so elective, that the symmetrical or analogous parts of opposite regions of the frame are singled out by it, to the exclusion of all others, however like to these in outward appearance.

This view of the case constitutes the cardinal doctrine sought to be established in the foregoing pages. On it, almost all the other inferences depend, and on the full and complete development of it, in application to the remarkable cases which form the subject of this paper, any claims to originality these observations may be supposed to have, are chiefly rested.

It is, in fact, this view of their nature which imparts to these cases their peculiar interest and importance. For, thus interpreted, they exhibit the agencies which govern the special actions of abnormal elements in the blood, in a point of view which, whether in showing the intimate relation of these agencies to those which preside over ordinary assimilation, as curiously traced in many ways in the foregoing pages, or in evincing the special and elective character of their power, so strikingly manifested

in the limited and peculiar form their results here assume, as objects of sight, is singularly calculated to give clearness and simplicity to our ideas of their nature, and to aid in our perception of the conditions by which their effects are determined.

Viewed in connection with these several relations, the action of medicines, which take effect after absorption into the blood, and that of the specific matters of humoral diseases, receive equal elucidation, alike valuable in either case, for right guidance in practice.

Pursuing this subject further, it was clearly seen in what manner a tendency to metastasis in diseases of humoral origin might depend on the comparative indifference of certain morbid matters, in that affinity whose very elective character, in the diseases considered in this paper, was held to be the origin of their peculiar characteristic.

It was next shown, how, by reason of this affinity, the morbid matters of these latter diseases might be truly regarded as tests or measures of likeness or identity in organic composition ; thus enabling us to discover in the drawings, and preparations laid before the Society, much curious and novel illustration of those laws of symmetry and organic analogy which govern the evolution of opposite parts of the frame.

The circumstances which may interfere with the usual and appropriate effects of this affinity of morbid matters for particular parts were then exa-

mined, and three influential circumstances of this kind especially recognised.

These were, febrile movement; lesion, or other material cause of organic change (in its effect in determining morbid matters present in the blood to act in preference on parts thus affected); and, lastly, variations in the amount of the morbid matter itself; conditions, to which a vast number of facts, both in pathology and therapeutics, are subordinate, and all largely influential, in giving variety of effect to a single physical agent, whether morbid or medicinal.

For not the least prominent feature which emerges from the considerations brought to bear on these various topics, was the great extent to which those medicines which take effect after absorption into the blood, and the morbid matters of a large class of humoral diseases, might be considered as exact types of each other, and their effects viewed in connection with the advantage of mutual illustration: thus communicating in some degree—small perhaps—but susceptible of indefinite extension to a large province of humoral pathology, that character of exactness which belongs to subjects of experimental inquiry.

The origin and chemical character of the morbid matters of the diseases treated of were the next subjects of discussion.

The observations which followed on these abstruse and difficult topics were offered with much diffidence, and all that could be elicited from them

was stated in the form of a general presumption to this effect: that some of these matters are introduced from without in the shape of *ingesta*, or are formed in the act of digestion, while others are engendered in the blood itself: but that the latter is the most common mode of origin in chronic forms of disease, the morbid matters being in this case, of necessity, organic compounds, or such among inorganic, as are incidental to the human body.

In the whole course of the inquiry, of which a summary is here given, it cannot fail to be remarked, that almost all the important and leading inferences, although arising out of the consideration of a comparatively small group of diseases, are nevertheless strictly applicable to a large proportion of all cases which originate in the presence of morbid matters in the blood, and which form the largest and most important province of humoral pathology.

And by the help of these inferences, it would not be difficult to lay down, in general terms, many of the fundamental conditions by which the course and character of these diseases are determined in each particular case. But these remarks have already grown to such length, that others must be left to accomplish this task for themselves.

To pursue these conditions into detail, to give them individual reality, and to assign their exact value in each specific kind of disease, form the proper objects of future research.

The mode and degree in which the effect of these

conditions may become complicated by vital or organic changes once effected, and the new elements these may introduce into the treatment of the case, are interesting problems in the physiology of inflammation, but form no part of the present inquiry.

NOTICE OF
CASES OF PLAGUE
CONTRACTED IN THE
LAZARETTO OF CONSTANTINOPLE,
IN A LETTER ADDRESSED TO DR. DAVY.

By M. ANTOINE PEZZONI,
Conseiller d'état de S. M. l'Empereur de toutes les Russies, Attaché à la
Legation Impériale de Russie près la S. Porte.

WITH REMARKS BY DR. DAVY.

COMMUNICATED BY THOMAS HODGKIN, M.D.

READ APRIL 12TH, 1842.

THAT the long-agitated and very important question, whether the plague be truly a contagious disease, or merely endemic or epidemic, depending on local causes, is not decided, clearly appears from two of the latest works published on the subject, viz., those of Clot Bey, and of M. Boulard.* By the former author an attempt is made in a very elaborate manner to prove that the oriental plague is clearly not a contagious disease ; whilst by the latter, the contrary is maintained, he endeavouring to show, and in a no less elaborate manner, that it may be communicated from one person to another by con-

* De la Peste Orientale ; Par A. F. Boulard. Paris, 1839.

tact ; admitting however that in the majority of instances of contact the disease is not propagated. The difference of opinion between these two writers is the more remarkable, as their researches on the plague were conducted chiefly in the same country, Egypt, and about the same time, and in part in conjunction, both of them having belonged to a commission, which with most praiseworthy zeal devoted themselves for a considerable time to the investigation of this formidable malady, within the walls of a plague-hospital, which they voluntarily entered for the purpose.

That it is highly desirable that this question relative to the contagion or non-contagion of plague should be brought to an end, is not less manifest. Whilst it is undecided, there is little probability of anything of moment being attempted in regard to the quarantine laws, which stand in so much need of being revised and reformed, even to be rendered efficient, passing over entirely their present vexatious nature and injurious tendencies.

On leaving England in November 1840 for Constantinople, employed by her Majesty's Government on particular service in Turkey, with instructions from Viscount Palmerston, then minister for foreign affairs, amongst other duties, to make particular inquiry on the subject in question in connection with the quarantine system, my mind was in a state of doubt on the point at issue, for want, as it appeared to me, of conclusive evidence : if I had a bias either way, it was rather in favour of the doc-

trine of non-contagion. At Constantinople, I found all the medical men of any influence, all those who had witnessed plague in its epidemic and most terrible form, decided contagionists: but though they brought forward some circumstances apparently affording strong evidence in favour of the doctrine they advocated, I was far from convinced of its accuracy, and I remained in the same state of doubt till the month of June, when some facts came to my knowledge, authenticated in a very satisfactory manner, which appeared to be demonstrative that plague is really contagious.

The facts alluded to were briefly the following:— At a time when Constantinople and its neighbourhood were free from plague, and had been free for three years, a vessel arrived from Egypt with cases of the disease on board, which, with the whole of the crew and passengers, and their effects and merchandize, were disembarked, and placed in quarantine in the Lazaretto. Of the guardianos and porters employed in this service, two contracted the disease, one of whom died, one recovered. They entered on the duty in good health, they belonged to a population of about 800,000 souls, (for such is the estimate of the population of the Turkish capital at present, including its suburbs, and the banks of the Bosphorus,) free even from the suspicion of plague, and which remained free subsequently up to the time of my departure in the latter end of September, unless indeed one exception be made in the instance of an individual, a monk, a lay-brother of

the name of Gaëtano de Bologne, just liberated from the Lazaretto, and who it cannot be doubted contracted the disease whilst confined there.

These two cases, with a notice of that of the monk above mentioned, and of the son and daughter of the purveyor of the Lazaretto, who contracted the disease also, and died in the Lazaretto, are the subject of the following letter, which I have had the honour of having addressed to me by its author, a gentleman long resident in Constantinople, a member of the Superior Council of Health, and who for many years has specially directed his attention to the investigation of plague.

Attaching as I do great importance to these cases, I have thought it advisable thus to preface the letter, detailing and reasoning on them, with the hope that the particulars I have given, tedious as they are, and too much respecting myself, will be attributed to the desire I have that the facts should, if possible, have the same weight with others as they have had with me, and be held conclusive that plague *can* be propagated by contact in persons in good health, and in a place and atmosphere in a healthy state.

The tables appended, and the declaration on the part of M. Robert, the Director-General of Quarantine, may be useful in authentication of the facts, and for reference in support of the arguments advanced by M. Pezzoni.

M. PEZZONI

Monsieur le Docteur,

Je vais parler ici de deux faits qui s'étant trouvés entièrement à votre portée, ont pu être facilement vérifiés par vous, et vous convaincre de leur authenticité. Bien que les loïmographes classiques citent une foule de cas semblables, ceux que je soumets aujourd'hui à votre examen, sont, vous en conviendrez, d'une valeur inappréciable, attendu qu'ils vous dispensent de vous en rapporter à l'autorité des contagionistes, dont les assertions vous sont toujours suspectes.

Je me bornerai à vous offrir, dans cette lettre, une analyse très succincte de ces deux faits, persuadé que les particularités qui les ont accompagnés, sont plus que suffisantes pour infirmer la théorie de l'endémicité appliquée à la peste. Si je déplore comme homme la perte de mes semblables, j'aime à croire que ce malheur ne sera pas sans fruit pour la science, parce qu'il m'a fourni l'occasion si opportune de vous montrer, Monsieur, que la doctrine de l'endémicité est loin d'être aussi positive qu'on le pense.*

Pour parler le langage des non-contagionistes, admettons que parmi les passagers et les individus qui

* Je souhaitais joindre à la présente Lettre le *Journal Sub Litt. A*, où les notions les plus essentielles qui se rattachent à ces deux faits, se trouvent consignées, mais comme des occupations extraordinaires ne m'ont pas donné le tems de coordonner convenablement ces matériaux, je me ferai un devoir de vous transmettre cette pièce dans une seconde Lettre, que je me propose de vous adresser.

composent l'équipage du navire marchand ottoman de Yazidji-Oglou Méhémet, plusieurs aient, avant de s'embarquer sur le dit navire et de faire route pour Constantinople, ressenti à Alexandrie l'action pernicieuse des causes endémiques qui engendrent, selon eux, la peste. Durant le voyage, seize personnes succombent victimes du mal gagné à Alexandrie et sont jetées à la mer. Deux autres individus meurent après pour la même cause, et le capitaine les fait déposer sur une plage éloignée de trois quarts de lieue du village grec dit Itghelmès, à trois lieues des Dardanelles. Après quoi le navire poursuit sa course, et vingt quatre heures après il mouille à Constantinople.

Tout ce qui est survenu aux passagers et à l'équipage de ce navire, après sa venue dans cette Capitale, (le 8 Juin) se trouve soigneusement relaté dans le *Journal* précité.

Parmi ceux qui ont été atteints de la peste et en sont guéris, et d'autres qui ont succombé, appartenant au navire de Yazidji-Oglou Méhémet, il ne faut pas confondre Abdoullah, natif de Ghémat, *garde de Santé*, ni Méhémet Husséïn de Césarée, *portefaix*, désignés dans le *Journal* sus-mentionné, attendu que ces deux individus, établis depuis long-tems à Constantinople, ne se sont pas trouvés à Alexandrie pour y gagner la peste à l'instar des autres. Il y a plus, ce portefaix n'est jamais entré dans le navire de Yazidji-Oglou Méhémet ; il n'a fait que transporter les effets des passagers du dit navire à leurs chambres respectives dans le Lazaret. Si

donc, le garde de Santé et le portefaix susdits ont été attaqués de peste, on demande comment cela est arrivé, si ce n'est pour avoir communiqué avec les passagers, ou les hommes de l'équipage du navire en question ?

La peste a été si bien observée et constatée dans cette occasion, que nous espérons que M. Davy n'admettra aucun doute à cet égard. Outre les autres symptômes remarqués chez tous ces pestiférés, les bubons et les charbons sont encore là, qui attestent la nature de l'affection.* Puis, le *Journal* précité ne nous informe-t-il pas de l'acuité du mal ? A cet égard, sans passer en revue un à un tous les individus qui ont été frappés de peste, est-ce que le garde de santé susdit, qui tomba malade le 13 Juin, ne mourut-il pas le 15, de sorte que sa maladie ne dura pas plus de 48 heures ? (Voir à ce sujet la *déclaration*, ci-annexée, sub N° 1. de M. L. Robert.)

Le portefaix susdit qui vient de guérir puisqu'il se trouve déjà en pleine convalescence, porte à l'aîne gauche le bubon qui suppure encore, ce que j'ai vérifié moi-même aujourd'hui en compagnie de MM. les Docteurs Davout-Oglou et Marchand †, de

* Il est à noter que cette Lettre a été écrite le 10 Juillet jour où je me rendis au lazaret de Koulély pour visiter ces pestiférés, que vous avez vous-même visités, Monsieur le Docteur, avant moi, en compagnie de MM. le D^r Ed. Daltzel Dickson, Membre du Conseil Supérieur de Santé et Louis Robert Directeur-Général des Quarantaines et Membre du Conseil Supérieur de Santé.

† Tous deux médecins sanitaires de l'Intendance Générale, et Membres du Conseil Supérieur de Santé.

Chérif Méhémet Effendi de Ghies* et de M. L. Robert, ainsi que de l'expert Abraham. (L'on trouvera à cet égard, des détails plus circonstanciés dans la *Déclaration*, ci-jointe, sub N° 2. de M. L. Robert.)

J'ajouterais que comme j'avais désiré effectuer cette visite en votre compagnie, Monsieur, je me rendis le 9 Juillet à votre logement pour vous y engager ; mais vous étiez parti pour la mer Noire.

Au surplus, vous savez, aussi bien que tout le monde, Monsieur, que lorsque le navire de Yazidji-Oglou Méhémet arriva à Constantinople, la peste n'existe pas dans cette Capitale, et vous n'ignorez pas non plus que cette ville en est exempte depuis trois ans. A quelle cause donc faut-il rapporter les attaques du garde de Santé et du portefaix susmentionnés ? A moins qu'on ne veuille admettre des effets sans cause, vous serez forcé de convenir, Monsieur, qu'il y a une contagion pestilentielle et qu'elle a été tout bonnement importée à Constantinople par le navire ottoman susdit, car lorsque la peste sévit d'une manière si frappante à bord de ce navire, il serait aussi irrationnel qu'absurde de l'attribuer à des causes endémiques, qui peuvent bien occasionner des maladies, *mais jamais la peste*. Pour faire mieux ressortir que la contagion avait atteint le garde et le portefaix, j'ai admis, pour un moment, que tous ceux qui ont été frappés de peste

* Directeur du lazaret de Koulély et Membre du Conseil Supérieur de Santé.

sur le navire de Yazidji-Oglou Méhémet, portaient avec eux, avant de s'embarquer, les germes du mal ; mais comme je ne puis pas non plus me dispenser de vous dire nettement ma pensée, je vous avouerai, que je ne croirai jamais que la chose se soit passée ainsi. Ma conviction est qu'un ou deux de ces passagers, avaient contracté la contagion avant de s'embarquer, et qu'une fois la maladie développée en eux à bord, elle a été communiquée aux autres par le contact médiat ou immédiat ; tel est le mode d'agir des contagions.

Si les deux faits que je viens de désigner, celui du *garde* et l'autre du *portefaix*, ne vous prouvent pas l'existence de la contagion, je doute fort que vous puissiez, Monsieur, rencontrer des faits plus circonstanciés et plus évidens que ceux-ci. Puisqu'il n'y a pas d'effet sans cause ; puisque les causes endémiques d'Alexandrie n'ont pas pu agir sur le garde ni sur le portefaix, vous êtes forcé de convenir que ces deux individus ont été contaminés par le contact immédiat des passagers du navire en question, ou par le contact médiat de leurs effets. Or, l'existence de la contagion buponique, est dans ce cas, plus que démontrée. C'est pour vous offrir cette démonstration, que j'ai écrit cette lettre.

Permettez, Monsieur, que je m'arrête un instant sur une opinion que vous avez émise, qui mérite cependant d'être rectifiée. Vous m'observâtes, un jour, vous être assuré que les marchandises infectes arrivées du Levant, n'ont jamais communiqué la peste aux hommes qui les manient dans les lazarets

d'Europe pour les désinfecter. Bien que j'eusse alors l'honneur de vous affirmer le contraire, je tiens à vous le prouver par des faits, car je sens toute l'importance que les non-contagionistes mettent à soutenir que les marchandises, ou les hardes brutes venues de la Turquie ou de la Barbarie, n'ont jamais donné la peste dans les lazarets d'Europe, de quoi ils concluent que la peste tire son origine des causes endémiques. Pour réfuter l'opinion de ces Messieurs, j'invoquerai donc les mêmes faits qui viennent de se passer ces jours-ci à Constantinople, faits qui démontrent que les employés des lazarets y contractent la peste. En effet, le garde de Santé Abdoullah, le portefaix Méhémet Husséin, et les deux fils de l'aubergiste, George et Lulizza, n'ont-ils pas été attaqués de peste au lazaret de Koulély, puisque l'on sait qu'ils ne sont pas venus sur le navire du capitaine Yazidji-Oglou Méhémet, qu'importe si ces individus ont été contaminés par le contact médiat ou immédiat ? Or, si ces faits servent à vous prouver, Monsieur, l'existence de la contagion bubonique, il n'est pas moins certain qu'ils vous prouvent également, que les personnes attachées au service des lazarets, tant en Chrétienté qu'en Turquie, y gagnent souvent la peste.

Nous observera-t-on que les causes endémiques, qui occasionnent la peste, se trouvaient circonscrites dans Koulély ? Mais pourquoi demanderai-je, alors, ces causes n'étaient-elles pas un peu plus étendues à droite ou à gauche de ce lieu, de cette enceinte ? Pourquoi étaient-elles si rigoureusement bornées à ce

lazaret, qu'elles ne se soient manifestées dans aucune autre partie contiguë ? Comment ces causes pourraient-elles exister à Koulély, qui est un endroit si sain sous tous les rapports, et où l'air est excellent ? Il suffit d'avoir parcouru ce vaste établissement pour se former l'idée la plus favorable de ses conditions hygiéniques. La preuve en est que le personnel de ce lazaret, et les individus qui y ont purgé leur quarantaine* y ont joui toujours de la meilleure santé, excepté ceux qui étaient malades avant d'y entrer. Ajoutons en outre que les environs de Koulély sont également sains. Si pendant trois années consécutives, ce lazaret a reçu dans son enceinte un si grand nombre de personnes, pourquoi, en dernière analyse, ces causes endémiques ne s'y sont-elles décélées qu'après l'arrivée du navire ottoman commandé par le capitaine Yazidji-Oglou Méhémet ?

Transportons-nous maintenant au couvent de la Terre-Sainte situé à Pétra. Pourquoi les causes endémiques de ce lieu auraient-elles agi seulement sur le moine laïque, frère Gaëtano de Bologne, et pas sur les autres moines qui l'habitaient depuis long-temps, puisque nous avons vu l'impossibilité d'admettre ces causes à Koulély ? Pourquoi ces causes se seraient-elles mises en évidence seulement ces jours-ci dans la Terre-Sainte et pas auparavant, c'est-à-dire,

* Depuis la fondation de ce lazaret, qui date du 1^{er} Rébilevel 1255 (19 avril n.s. 1839), jusqu'au 1^{er} Rédjeb 1257 (18 août n.s. 1841), c'est-à-dire, dans l'espace de vingt-huit mois, y sont entrés 12,771 quarantainaires.

dans l'espace de vingt à trente ans ? Et cependant cet endroit n'a subi, depuis nombre d'années, aucune modification ou changement dans son sol, ni dans son intérieur, si ce n'est qu'on y a fait des légères améliorations. Comment donc la peste se serait-elle développée sur le frère Gaëtano, d'après les non-contagionistes ?

Sous le rapport humanitaire c'est un malheur que la peste ait franchi les limites du Lazaret de Koulély, par une de ces infractions que se commettent même dans les Lazarets les mieux organisés et les mieux régis de l'Europe,* infractions, qui peuvent plus facilement survenir dans le service sanitaire de la Turquie (créé à peine depuis trois ans), pour des causes qu'il n'est pas encore au pouvoir du Conseil de Santé de surmonter, et que nous croyons inutile de signaler ici.

Malgré les obstacles dont le Conseil de Santé se trouve environné, il devait cependant s'estimer heureux d'être parvenu à circonscrire la peste dans le Lazaret de Koulély, après qu'elle y avait été apportée d'Alexandrie. Cette tâche a été en vérité plus ardue que l'on ne s'imagine, soit parceque ce Lazaret renfermait, à cette époque, plus de cinq cents quarantainaires, soit parceque les Gardes et autres employés de cet établissement n'étaient pas tous doués des qualités nécessaires pour inspirer une entière confiance. Ce n'est pas ici le lieu de dire pourquoi ce service est aujourd'hui défectueux dans plusieurs de

* Preuve de cela, les pestes récentes qui ont éclaté en Dalmatie, à Noja, à Malte, à Odessa, etc.

ses parties ; nous nous bornerons à observer que nous espérons avec le temps et avec de la persévérence, le rendre tel qu'il doit être.*

Tout en signalant ces inconvénients, je saisirai cette occasion pour avertir le public de se mettre en garde contre certains Zoïles qui, ignorant tout ce que le Conseil Supérieur de Santé opère sans relâche, dans le but d'affermir et de régulariser l'institution quarantinaire, trouvent plus facile de décrier ce Corps et de le calomnier, que d'acquérir des notions exactes sur la nature de ses travaux, et des obstacles qu'il a rencontré et qu'il rencontre tous les jours, pour réaliser ses vues, ce qui porterait ces détracteurs à tenir un langage plus conforme à la justice et à la vérité.

L'accident de peste qui s'est montré le 30 Juillet sur le moine Gaëtano, laïque du couvent de la Terre-Sainte à Pétra, est, à mon avis, une des preuves les plus frappantes, 1° de l'existence de la contagion, attendu que le charbon qui occupe la fosse iliaque droite du moine précité, s'est manifesté le 24 juillet, c'est-à-dire, un jour après sa sortie du Lazaret ; 2° de l'efficacité des mesures sanitaires toutes les fois qu'elles sont exécutées avec promptitude et précision.

Si le Conseil de Santé ne se fût pas trouvé dans

* The Guardianos employed were all Turks. The Council of Health have succeeded, I believe, in employing Franks in this capacity, at least in part. Having little or no dread of plague, it is not surprising that Turkish Guardianos should be careless.—J. D.

la dure nécessité de permettre que ce moine et tant d'autres individus quittassent le lazaret quatre jours avant l'expiration de leur quarantaine,* la peste n'aurait pas été transportée, par ce moine, au dehors de cet établissement. Il paraîtra, à la vérité, étrange qu'il ait pu exister un motif assez puissant pour que le Conseil osât contrevénir aux réglements faits par lui-même. Il suffira cependant de dire que ce motif a réellement existé ; qu'il est bien connu par l'autorité de qui le Conseil relève, ce qui le dispense de le révéler au public pour sa décharge.

Qu'on pèse les antécédens et les particularités qui ont accompagné ces cas, et l'on acquerra la certitude que le moine Gaëtano avait été atteint du virus boubonique avant de quitter le lazaret, par le manque d'une surveillance incessante et éclairée dans l'exécution des mesures sanitaires.† Ceci démontre aussi la nullité des causes endémiques auxquelles les non-contagionistes attribuent la peste, par la raison que si ces causes avaient existé dans le lazaret et eussent été capables d'engendrer la peste, nul doute qu'elles eussent agi sur beaucoup d'autres individus, tandis qu'on voit que le moine Gaëtano est frappé de la contagion avant de quitter Koulély, et une fois entré dans le couvent de la Terre-Sainte, le mal se borne

* By order of the Turkish Government to shorten the period of quarantine of an individual of high rank.—J. D.

† Ce Lazaret devant être sous peu entièrement désinfecté, on procédera aussitôt après à une réforme dans le personnel, ainsi que dans plusieurs localités de cet établissement, que l'expérience a démontré nécessaires.

à sa personne et ne sort pas de ce lieu, en vertu des mesures promptes et efficaces, que le Conseil de Santé a mis en vigueur pour l'isoler et l'étouffer. Cette observation est si juste et si concluante, que nous avions eu déjà l'occasion de la faire relativement aux pestiférés retenus dans le lazaret de Koulély. (Voir le Tableau Sub N° 3 placé à la fin de cette Lettre.)

En effet, que la peste ait existé à bord du navire de Yazidji-Oglou Méhémet, c'est un fait qu'on ne pourra jamais révoquer en doute, vu les dix-huit individus qui y ont succombé durant le voyage d'Alexandrie à Constantinople. Un tel foyer pestilental se trouvant sur ce navire, sera-t-il raisonnable d'aller rechercher l'endémicité à Constantinople pour expliquer comment d'autres individus appartenant à ce même navire, ont été quelques jours après atteints de peste ? A la vue d'un nombre de faits si parlans dont la connexion et l'enchaînement sont si intimes, faut-il désérerter la logique pour ne pas en apprécier les conclusions, et recourir à des *hyperboles* pour éclaircir ce qui est d'une évidence matérielle et palpable ?

En outre, il ne faut pas oublier que ce laïque était venu de la Syrie avec le Père Raimond, procureur-général de la Terre-Sainte, et qu'il cohabitait avec lui dans le lazaret, de sorte que si l'on est fondé à croire que le dit procureur est mort de peste le 16 Juillet, bien que l'on n'ait remarqué en lui aucun signe extérieur qui la caractérisât, cette circonstance fournirait une raison de plus pour comprendre le

mode dont ce laïque aurait été infecté. Cependant l'opinion du laïque est, qu'il aurait gagné la contagion en prenant le papier qui renfermait le sel acheté chez l'aubergiste du lazaret, un jour avant que le fils de ce dernier fût attaqué de peste,* car le laïque soutient s'être senti mal aussitôt après avoir touché ce papier.

Comme l'action de la contagion est aussi invisible que celle des causes endémiques, il s'ensuit que si j'ai prouvé dans cet écrit l'insuffisance de ces dernières, il est évident que l'action de la contagion reste seule en jeu, et que les employés du lazaret de Koulély, qui ont été attaqués de peste, ont dû assurément l'être par les pestiférés venus d'Alexandrie, ou par leurs hardes contaminées.

Il est bon de faire remarquer ici que la contagion n'a pas dépassé les limites qu'on lui avait assignées à l'île de Proti. Tout ce qui s'est passé, en même-temps, dans cette île, où le navire de Yazidji-Oglou Méhémet et ceux de Moustapha capitán et de Hassan capitán, ont été envoyés pour être complètement désinfectés, ainsi que leurs équipages, mérite aussi

* Cet aubergiste, Makastar, perdit à cette occasion, le 15 Juillet son fils aîné, nommé George, âgé de 23 ans, et deux jours après sa fille aussi, dite Lulizza de 17 ans, décédée du même mal. Il est évident que la contagion fut communiquée à ces deux créatures par les gardes qui soignaient les pestiférés ; gardes qui n'usaient pas les précautions requises lorsqu'ils se rendaient auprès de l'aubergiste réputé en libre pratique. Nous pensons que l'aubergiste de son côté ne se soit pas prévenu assez contre ce danger, par la raison qu'il ne devait pas craindre la peste, de laquelle il avait été atteint quelques années avant.

d'être particulièrement connu et pris en mûre considération, car les faits qui s'y rattachent ne font que rendre plus évidente encore la présence de la contagion. (Voir là-dessus ce qui est consigné dans le *Journal* précité.)

Vous serez bien plus surpris encore quand vous saurez, Monsieur, que le navire empesté de Yazidji-Oglou Méhémet avait, avant de toucher Constantinople, communiqué la peste dans le village grec dit Itghelmes,* à trois quarts de lieue du littoral entre les Dardanelles et Aïvadjik. Les différens cas de peste observés par le médecin sanitaire, M. Spiridion Xanthopoulo, qui a dirigé toutes les mesures jugées essentielles, pour cerner et étouffer la contagion dans ce village, seront par moi exposés en détail et consignés dans la seconde Lettre que j'aurai l'honneur de vous adresser le plutôt possible, car ces mesures ont été couronnées du plus prompt succès.

Si je vous dis maintenant que je m'estimerai heureux de vous avoir porté à admettre l'existence de la contagion bubonique, c'est que je pense qu'après avoir visité le Levant et vu de vos propres yeux la peste, votre opinion une fois bien arrêtée sur un point si important, servirait à ramener les non-contagionistes à des idées moins vagues et plus en harmonie avec l'évidence des faits, ce qui hâterait l'époque, tant désirée, de la révision des lois quarantainaires, en leur faisant subir les réformes dont

* On compte dans ce village près de trois cent maisons, qui renferment mille cinq cent âmes environ.

elles sont susceptibles, au grand profit de la science et du commerce.

Ma première idée en rédigeant cette Lettre était de l'annexer au Mémoire que j'ai pris l'engagement d'élaborer, en réponse aux questions sur la peste, qu'il vous a plu de m'adresser. Comme mes occupations ne me permettent pas de me livrer avec suite à ce travail, et prévoyant qu'il ne sera pas achevé de sitôt, attendu que j'ai été contraint d'y donner, malgré moi, plus d'étendue que je ne croyais d'abord, cette considération m'a porté à vous consacrer aujourd'hui ces lignes, qui fixeront, j'espère, votre attention, puisqu'elles me paraissent de nature à résoudre la question qui vous occupe.

Dans une seconde Lettre qui sera la continuation de la présente, je ne manquerai pas de vous communiquer d'autres particularités qui s'y réfèrent, et qui ne seront pas moins importantes.

J'aime à croire que vous trouverez, Monsieur, aussi naturel que juste, que je donne à ces Lettres, dans l'intérêt de la science, toute la publicité possible.

Signé: A. PEZZONI.

Péra de Constantinople,
le 10 Juillet n. s. 1841.

SERVICE SANITAIRE.

DECLARATION SUB No. 1.

De M. LOUIS ROBERT, Directeur Général des Quarantaines, relative au nommé Abdoullah, Garde Sanitaire de l'Intendance Générale.

Le Soussigné déclare que le 14 du mois de Juin 1841, s'étant rendu au Lazaret de Koulély, à l'effet d'y inspecter le service, il fut prévenu que le garde de santé de l'Intendance, nommé Abdoullah, âgé de 18 ans, était tombé malade. Le Soussigné s'étant aussitôt transporté près du brick ottoman pestiféré, commandé par le capitaine Yazidji-Oglou Méhémet provenant d'Alexandrie, fit descendre le susdit garde dans l'embarcation, où, l'ayant visité à nu, en compagnie de M. Davout Oglou, médecin de l'Intendance, ils découvrirent un bubon bien prononcé à l'aîne gauche avec prostration de force, très marquée, les yeux hagards, la langue nacrée, etc. La peste une fois constatée, le garde Abdoullah fut acheminé à l'hôpital des pestiférés dans le dit Lazaret, étant soutenu par deux *mortis* (experts). Depuis lors, la maladie fit des progrès si rapides, qu'Abdoullah décéda le lendemain du 15 à l'aube du jour. Le cours de sa maladie a été des plus aigus, puisqu'elle n'a pas duré plus de 48 heures.

Le Soussigné déclare et atteste que le dit garde Abdoullah jouissait d'une parfaite santé avant d'être placé à bord du navire du capitaine Yazidji-Oglou Méhémet, ce qui eut lieu le 8 Juin, jour où ce dernier arriva dans ce port. Il déclare, en outre, que s'étant transporté le 14 Juin au Lazaret sus-

mentionné avec M. le D^r. Marchand, médecin de l'Intendance, à l'effet de visiter les malades du navire précité, et après avoir constaté qu'ils étaient attaqués de peste, il exhorte le garde Abdoullah, dans son propre intérêt, à ne pas toucher les pestiférés sus-dits, contre lesquels il ne prenait aucune précaution, attendu qu'il avait aidé à les transporter à l'hôpital ; à quoi celui-ci répondit, qu'il ne craignait pas la peste, et il ne tint aucun compte des conseils qu'on lui donnait. Le Soussigné fit alors remarquer cette circonstance à M. le Directeur du lazaret, Chérif Méhémet Effendi, l'invitant à exercer sur ce garde la plus grande surveillance. En effet, les craintes du soussigné ne tardèrent pas à se réaliser, car on doit noter qu'Abdoullah avait commencé à ressentir l'action du virus bubonique dès la veille, c'est-à-dire le 13, jour où Chérif Méhémet Effendi de Ghies, l'ayant vu sur le quai du lazaret au moment où il descendait du navire de Yazidji-Oglou Méhémet, lui trouva l'aspect d'un cadavre ambulant ; il chercha à voir sa langue ; elle était blanchâtre, lui ayant alors demandé quel était l'état de sa santé, il répondit qu'il se portait bien.

Il est bon d'observer qu'Abdoullah était natif de Ghémat, près d'Erzéroum ; qu'il était venu, dès son enfance, à Constantinople avec son père, et qu'il n'avait jamais quitté cette Capitale. Ce jeune homme servait l'Intendance depuis deux ans environ.

Constantinople, le 14 Juillet 1841.

Le Directeur Général des Quarantaines.

Signé: L. ROBERT.

DECLARATION SUB No. 2.

De M. LOUIS ROBERT, Directeur Général des Quarantaines, concernant le nommé Méhémet Husséin,
Portefaix du Lazaret de Koulély.

Le Soussigné déclare que le 22 juin 1841 se trouvant au lazaret de Koulély, il fut prévenu que le portefaix, nommé Méhémet Husséin, âgé de 35 ans, doué d'une complexion très robuste et d'une belle taille, était tombé malade depuis deux jours. Le Soussigné s'étant aussitôt transporté près de la chambre du dit portefaix, accompagné de M. le Docteur Davout-Oglou, médecin de l'Intendance, ils le visitèrent à nu et ils y remarquèrent un bubon très volumineux à l'aîne gauche, abattement de force, yeux troublés, langue chargée, etc.

Une fois la maladie de Méhémet Husséin avérée, il fut transporté à l'hôpital des pestiférés, où il se trouve aujourd'hui en pleine convalescence.

Il est bon d'observer que ce portefaix, natif de Césarée, habitant Constantinople depuis son enfance, avait transporté dans le lazaret les hardes et les marchandises arrivées sur le brick ottoman pestiféré, commandé par le capitaine Yazidji-Oglou Méhémet.

Constantinople, le 14 Juillet 1841.

Le Directeur Général des Quarantaines.

Signé: L. ROBERT.

No. 3.—Tableau des Cas de Peste observés dans l'Hôpital du Lazaret de Koulély et dans l'Île de Proti,* à dater du 8 Juin N. S. 1841 jusqu'à
15 Août N. S. Année courante.

Noms des Capitaines des Batiments sur les- quels sont arrivées les d'or- des Pestiférés.		Nom et Prénom des Pestiférés.		Lieu de Naissance.		Sexe. Age.		Etat.		9 Juin. Esclave.		Caractère de la Maladie.		Date de la Guérison.	Date du Décès.	OBSERVATIONS.	
Méhémet Yazidji- Oglou.	1 Esclave de Hadji Abdullah.	Nubie.	Fém.	13	Esclave.	Peste.	—	9 Juin.	Peste.	"	"	9 Juin.	—	9 Juin.	—	Après 24 heures de maladie, accompagnée de vomissement, et un gros mal de tête, elle a décédé, sans présenter aucun signe de peste à l'extérieur. Bubon à l'aisselle gauche. Un bubon à l'oreille droite, et un charbon à la jambe droite. Un bubon à laine droite.	
	2 Esclave de Hadji Ali Hava, esclave de Yazidji-Oglou.	"	"	15	"	"	"	"	"	"	"	14	"	9 "	—	Un bubon à l'aisselle gauche.	
	3 " "	"	"	20	"	"	"	"	"	"	"	14	"	9 "	—	Bubon à laine gauche.	
	4 Slim, esclave du dit capitaine.	"	Mas.	13	"	Pelerin.	"	"	"	"	"	14	"	9 "	—	Bubon à l'aisselle droite et deux charbons à la poitrine.	
	5 Abdoullah.	Mecque. Missirvi.	"	40	MateLOT Grec.	"	"	"	"	"	"	14	"	9 "	—	Bubon à laine droite et deux charbons à la poitrine.	
	6 Aslanoglu.	Borten.	"	35	MateLOT.	"	"	"	"	"	"	14	"	9 "	—	Bubon à l'aisselle droite et deux charbons à la poitrine.	
	7 Hussein.	Crimée.	"	20	Pelerin.	"	"	"	"	"	"	14	"	9 "	—	Bubon à laine droite et deux charbons à la poitrine.	
	8 Hadji Abdoullah.	"	"	45	"	"	"	"	"	"	"	14	"	9 "	—	Bubon à laine droite et deux charbons à la poitrine.	
	9 Hadji Hassan.	Bosnie.	"	25	"	"	"	"	"	"	"	14	"	9 "	—	Bubon à laine droite et deux charbons à la poitrine.	
	10 Hadji Ali.	"	"	25	"	"	"	"	"	"	"	10	"	14	"	Bubon à laine droite et deux charbons à la poitrine.	
tan an. emet em. dji- u. ...employés du Lazaret.	11 Moustapha.	Trébisondie.	"	26	MateLOT.	"	"	"	"	"	"	14	"	14 "	—	Bubon à laine droite, et deux charbons à la poitrine.	
	12 Hadji Moustapha.	Dobrouga.	"	28	Pelerin.	"	"	"	"	"	"	12	"	12 "	—	Charbon à la jambe droite.	
	13 Méhémet.	Choumia.	"	32	"	"	"	"	"	"	"	13	"	13 "	—	Charbon sur le col.	
	14 Suléiman.	"	"	45	"	"	"	"	"	"	"	13	"	13 "	—	Bubon à l'aisselle gauche, qui n'a pas suppurré.	
	15 Hadji Ali.	Belgrade.	"	35	"	"	"	"	"	"	"	14	"	14 "	—	Bubon à laine droite.	
	16 Hassen Ismaïl.	Trébisondie.	"	85	Passager.	"	"	"	"	"	"	14	"	14 "	—	Charbon sous claviculaire droite.	
	17 Abdoullah.	Ghémat.	"	25	Garde de Santé.	"	"	"	"	"	"	19	"	19 "	—	Charbon à laine gauche.	
	18 Méhémet Husséin.	Césarée.	"	35	Portefax du lazaret.	"	"	"	"	"	"	22	"	22 "	—	Bubon à laine droite, qui est presque cicatrisé.	
	19 George Makastar.	Constantinople.	"	23	Fils de l'Aubergiste	"	"	"	"	"	"	25	"	25 "	—	Bubon à laine gauche.	
	20 Lulizza Makastar.	Fém.	"	17	Fille	"	"	"	"	"	"	17	"	17 "	—	Bubons à chaque aine et des pétechies sur tout	

Note des Individus attaqués de Peste à l'Île de Proti.

Méhémet Yazidji- Oglou.	21 Suleiman Reis.	Rhôdes.	Mas. 50	MateLOT.	16 Juin.	Peste.	—	20 Juin.	Un charbon à l'œil gauche, un autre à l'épaule droite et autres 3 au bras gauche.
22 Achmet Omer.	Trebisondie.	"	25	"	22 "	"	14 Juillet	—	Trois charbons sur la cuisse gauche, et un à la jambe droite.
23 Yahia Yacoub.	Rise.	"	25	"	22 "	"	"	—	Un bubon à chaque aine encore en suppuration.

Constantinople, le 29 Juillet 1841.

Le Directeur-Général des Quarantaines, (Signé) L. ROBERT.

* This island in the Sea of Marmora was made a quarantine station.—J. D.

To this letter I beg to add a few remarks: first, relative to the observations incidentally made by M. Pezzoni; and, secondly, relative to the main subject,—the question of the contagion of plague.

M. Pezzoni states that I had expressed doubt in conversation with him relative to the introduction of plague by means of merchandize, even into a lazaretto. Such a doubt I did express to him, considering other proof than that which he adduces, as necessary to remove doubt on the subject. The circumstances under which the porter and the son and daughter of the purveyor of the lazaretto contracted plague, were too obscure to afford satisfactory evidence on such a point. It is certain that the latter two did not acquire the disease by contact with merchandize; it is probable that all three were infected by touching articles which just before had been in contact with persons ill of the plague.

M. Pezzoni seems to think that it is of little consequence in regard to doctrine, whether the contact be immediate or mediate. It may be so in a strict sense, and yet the distinction between merchandize and the effects of persons, as a means of conveying the plague, may be well founded, and in a practical point of view of much importance. The proposition which I held was limited to merchandize, and I would repeat what I said in conversation, that I am not aware of any well-authenticated instance of the introduction of plague merely by merchandize, not even by the article cotton, of which, in its raw state, such large quantities have

of late been imported from Egypt. On this article it is easy to make inquiry, and have positive information, as it is subjected to quarantine, and to be exposed to the air, before it is permitted to be used in Europe. Such inquiry has been made in the different lazarettos, and the result has been, that not a single person of all those employed in opening and airing the bales, and who in doing this commonly have to thrust their hands into the bales, has ever been known to have been infected.

Relative to M. Pezzoni's conclusion from the facts he has detailed, I fully adopt it, as I have already stated in the preliminary remarks, and with all the importance as to consequences which he attaches to it.

About the same time that the proofs of the contagious nature of plague were afforded in the lazaretto of Constantinople, a similar case occurred in the lazaretto of Malta, and under circumstances as much alike as possible, and which have been recorded by Dr. Gravagna, the principal health officer of that establishment, in an interesting paper expressly on the subject. Dr. Gravagna reasons very much in the same manner as M. Pezzoni against the non-contagionists, considering the occurrence of plague in a Maltese, who communicated with plague patients in a ship from Alexandria, that city being then infected with plague, as proof demonstrative that the disease can be propagated by contact. If this be admitted to be proved, an important step surely has been made in the inquiry,

which, followed up with caution, may, ultimately, bring the investigation to a satisfactory end, so that our knowledge of plague may be on a similar footing to that of variola or any other disease which can be mentioned that has been carefully and dispassionately studied.

Murray Field House, Edinburgh.
November 30th, 1841.

OBSERVATIONS
ON
TUBERCLE OF THE BRAIN
IN CHILDREN,
WITH A TABULAR VIEW OF THIRTY CASES OF THE
AFFECTION.

By P. HENNIS GREEN, M.B.

COMMUNICATED BY DR. BURGESS.

READ JAN. 25TH, AND JUNE 28TH, 1842.*

IN the table which I have now the honour of laying before the members of the Royal Medical and Chirurgical Society, is contained a very succinct analysis of thirty cases of tubercle of the brain in children. Although this affection be extremely rare in adults, it occurs very frequently in children ; yet I am not acquainted with a single work on diseases of children, in which even a few lines are devoted to the subject of cerebral tubercle.

If the Society permit, I shall endeavour to supply the deficiency alluded to, by presenting for its consideration a paper on tubercle of the brain ; in the meantime, I offer the present tabular analysis for the purpose of showing that I possess a certain number of facts as a foundation for my remarks

* The two papers, though read separately, are here printed in continuity.

and conclusions. In diseases of the brain, beyond all others, our conclusions should be based on a sufficient number of carefully-observed cases, and I feel convinced that much of the obscurity at present attending the history of cerebral disease would be dispelled, if all the symptoms in each case were minutely noted, and the *post-mortem* researches conducted with accuracy and minuteness. The spinal marrow, for example, especially its superior portion, should be carefully examined in every fatal case of cerebral disease ; experience has shown me that many of the so-called anomalous examples of disease of the brain, are explained by lesions of the medulla oblongata, which have escaped notice, because the vertebral canal has not been opened.

In the present table will be found the name, age, sex, symptoms, and lesions, of 30 children who died from or with tubercles of the brain.

The ages varied between nineteen months and twelve years ; 13 cases occurred at the period comprised between the ages of two and four years, inclusive ; a greater number than occurred during any other three consecutive years.

With respect to sex, 14 were boys, 16 girls.

In 4 cases, no symptom whatever of cerebral disease existed during life ; in 2, the chronic symptoms were confined to periodical headache ; in 2, to deafness and purulent discharge from the ear ; in the remaining cases the most prominent symptoms of the chronic stage were headache, vomiting, amaurosis, convulsions, paralysis, and diminution

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Name.—Sex.	Age.	Symptoms of Chronic Stage.	Symptoms of Acute Stage.	Lesions.
No. 4. F. Divé. Girl.	7	One month. Headache; vomiting. Irregular fever.	Those of acute hydrocephalus.	Large effusion in ventricles, with softening of central parts of brain. Tubercles in right lobe of cerebellum. Miliary granulations in chest. Tubercles in abdomen.
No. 5. B. Fessing. Boy.	4	Convulsions. Peculiar rotatory motion of head.	Died of pneumonia.	Tubercles in right corpus striatum and in right lobe of cerebellum. 4 oz. of serum in ventricles. Tubercles in chest and abdomen.
No. 6. J. Mourgue. Boy.	11	Headache. Amaurosis. Squinting. Diminished sensibility of one side (left), with paralysis.	Delirium. Coma.	Tubercles in both lobes of cerebellum, with softening of nervous tissue. Tubercles in pons Varolii. Tubercles in right crus cerebelli. Tubercles in chest and abdomen.
No. 7. L. Patu. Girl.	3½	Two months. Headache. Stupority. Paralysis of left side. Strabismus. Constipation. Somnolence.		Tubercles in right crus cerebri, with green detritus around. Tubercles in chest and abdomen.
No. 8. A. M. Guinet. Girl.	12	Headache.	Died of peritonitis.	Tubercles in right hemisphere, with slight softening around. Tubercles in chest and abdomen.
No. 9. Aug. Raoult. Boy.	4	Headache. Irregular fever. Convulsive movements.	Died of pneumonia.	Tubercles in right hemisphere. Tubercles in chest.
No. 10. Alex. Legros. Boy.	3½	Convulsions with vomiting. Headache. Strabismus.	Died of small-pox.	Tubercles in both hemispheres. Tubercles in left lobe of cerebellum. 5 oz. of serum in ventricles. Tubercles in chest and abdomen.
No. 11. L. Boudin. Girl.	11	No symptoms of an affection of nervous system.	Died of phthisis.	Small tubercle in cerebellum. Tubercle in chest and abdomen.
No. 12. Therese Verité. Girl.	4	Ten months. Paralysis. Headache. Somnolence. Total blindness. Convulsions. Vomiting.	Died of small-pox.	Tubercle in left lobe of cerebellum, with softening of nervous tissue around. Six oz. of serum in ventricles. Tubercles in chest and abdomen.

Name.—Sex.	Age.	Symptoms of Chronic Stage.	Symptoms of Acute Stage.	Lesions.
No. 13. N. Goisset. Boy.	3	No symptoms.		Tubercles in left lobe of cerebellum. Tubercles in bronchial glands only.
No. 14. Mary Brouet. Girl.	8	Five months. Headache. Dullness of intellect. Irregular gait.	Those of acute hydrocephalus.	Tubercles in centre of cerebellum, with softening of nervous tissue around. Tubercles in chest.
No. 15. E. Vanier. Girl.	9	Deafness only.	Died of phthisis.	Tubercles in left hemisphere. Tubercles in chest and abdomen.
No. 16. Jane Masson. Girl.	10	Six weeks. Headache, with vomiting and constipation. Strabismus. Irregular gait.	Those of acute hydrocephalus.	Tubercles in both lobes of cerebellum; nervous tissue around softened. Tubercles in chest and abdomen.
No. 17. Ad. Desibier. Girl.	9	No symptoms.	Died of phthisis.	Twenty tubercles in right hemisphere. Tubercles in chest and abdomen.
No. 18. Nicholas Baude. Boy.	2	Nine months. Convulsions. Contraction of muscles, with partial paralysis. Vomiting.	Those of acute hydrocephalus.	Tubercles in left thalamus opticus, with softening around. Five oz. of serum in ventricles. Tubercles in chest and abdomen.
No. 19. Ernestine Puchot. Girl.	7	Five months. Epilepsy. Loss of intellect, and power of speech.	Shaking of head; loss of movement, with contracture of left arm. Contracted measles, and died.	Tubercles in left hemisphere, with softening of nervous tissue. Tubercles in chest and abdomen.
No. 20. A. Lejeune. Girl.	3	Six months. Headache; difficult progression; paralysis of eyelid; epilepsy; hemiplegia.	Those of acute hydrocephalus.	
No. 21. J. Bombit. Girl.	4	Nine months. Headache. Change of temper. Somnolence. Convulsions. Paralysis.	Symptoms of softening of the brain.	Tubercles in pons Varolii and in left crus cerebelli, with softening of the nervous tissue around. Tubercles in chest and abdomen.
No. 22. H. Jesus. Girl.	7	Three months. Headache. Vomiting. Constipation. Convulsions.	Symptoms of acute hydrocephalus.	Tubercles in right hemisphere and right lobe of cerebellum. Four oz. of serum in ventricles. No tubercles in chest; some in mesenteric glands.

Name—Sex.	Age.	Symptoms of Chronic Stage.	Symptoms of Acute Stage.	Lesions.
No. 23. A. Kiffer. Boy.	4	No account obtained of. Strabismus.	Convulsions. Coma.	Tubercles in centre of cerebellum. Two oz. of fluid in ventricles. Tubercles in chest.
No. 24. — Bernard. Boy.	7	Twelve months. Headache. Irregular fever. Slight convulsive fits.	Symptoms of acute hydrocephalus.	Tubercles in right hemisphere. Tubercles in right lobe of cerebellum. Four oz. of serum in ventricles. Tubercles in chest and abdomen.
No. 25. M. Mettavier. Girl.	7	Headache.	Symptoms of acute hydrocephalus.	Tubercles in left lobe of cerebellum; tubercles in right lobe also. Three oz. of fluid in ventricles, with softening of central parts of brain. Tubercles in chest.
No. 26. J. Gautier. Girl.	4	Twelve months. Convulsions. Headache. Strabismus. Somnolence. Hemiplegia.	Symptoms of acute hydrocephalus.	Tubercles of left hemisphere. Tubercles of right lobe of cerebellum, with softening of nervous tissue. Tubercles in upper part of spinal marrow. Tubercles in chest and abdomen.
No. 27. E. Thielbaut. Boy.	19 Mo ^s .	Six months. Convulsions. Amblyopia. Paralysis.	Chronic hydrocephalus, with enlargement of head.	Seventeen tubercles in cerebrum: four tubercles in cerebellum. Nearly a quart of fluid in ventricles. Tubercles in chest alone.
No. 28. Charles Blondel. Boy.	2	Convulsions.	Died of pneumonia.	Tubercles in both lobes of the cerebellum. Tubercles in the chest and abdomen.
No. 29. Emile Gabriel. Boy.	2	No symptoms, except purulent discharge from ears.	Died of abdominal disease, with convulsions.	Tubercles in both hemispheres. Caries of both temporal bones. Chest and abdomen not examined.
No. 30. — Landormi. Boy.	5	Four months. Epilepsy: weakness of left leg and arm; then general paralysis. Accesses of fever, with trembling of limbs; vomiting. Pains in head and loins.	Died of pneumonia during measles.	Tubercular mass in the great fissure of the brain, with softening of the nervous tissue. Traces of chronic inflammation of the membranes. Tubercles in chest. Spinal marrow softened in the lumbar region.

I shall now endeavour to draw up, from these cases, a brief account of the history, symptoms and diagnosis of the disease.

Tubercle of the brain is a very rare affection amongst adults, though comparatively frequent amongst children. M. Cruveilhier has never seen an example in a person advanced in life. M. Louis met with a single one, in 117 cases of phthisis amongst adults. In his lectures on tubercular scrofula, M. Lugol assures us that, in his extensive practice, at the hospital of St. Louis, he has seen only eight cases of the disease; in four, the tuberculous matter occupied the cerebrum; in three, the cerebellum; and in one, the pons Varolii. In six of these eight cases no symptoms existed during life; and M. Lugol affirms "that the diagnosis of cerebral tubercle is involved in the greatest obscurity."

Dr. Abercrombie, in his work on diseases of the brain, relates only one case, from his own practice, which occurred in a man 34 years of age.

In children, on the contrary, tubercle of the brain is, comparatively speaking, a frequent affection. I have observed one case to every 51, in 1324 cases of acute disease.*

Age.—The age at which this disease most frequently occurs appears to be from three to seven years, inclusively. This results from a sum of 75

* In the year 1833, 703 boys were admitted into the wards for acute disease in the Children's Hospital; in 1834, 621 girls. Of the 1324 patients, 26 had tubercles in the brain, being a proportion of one to 51.

cases, observed by myself and others at the Children's Hospital.

Seat, number and volume.—With respect to size, situation and number, cerebral tubercles present great variety. They are often single, but as frequently numerous. In one remarkable case (Desibier's) there were 20 tubercles, of various sizes, in the right hemisphere; in another case, which M. Bell presented to the Anatomical Society, there were 50 tubercles in the cerebrum and cerebellum.

In volume, the tubercular mass varies from the size of a small nut or bean to that of the doubled fist.

The seat of the tubercle is also various; but it is most frequently found in the substance of the hemispheres. In the 30 cases contained in my table, the tubercular deposit existed eleven times in the hemisphere of the cerebrum; nine times in the cerebellum; seven times in the cerebrum and cerebellum together; and twice in the cerebellum and pons Varolii, together. I have, however, notes of two cases in which the tubercle was confined to the pons Varolii.

As the symptoms of this disease evidently depend on the mechanical pressure exercised by the tubercle, and on the irritation or inflammation which it excites in the surrounding tissues, it may be well to indicate briefly the different lesions of the brain which accompany tubercle of this organ.

In many cases, even when the tubercle is of considerable size, we cannot discover the slightest

change in the surrounding nervous substance, or in the neighbouring membranes. The gradual development of the tubercular mass seems to pass unheeded by the central nervous system. In other cases the membranes adhere to the cortical substance, over the site of the tubercle, and are more or less infiltrated and thickened. Sometimes, when the tubercle is large, the convolutions are flattened or completely effaced. The colour and consistence of the nervous substance, immediately surrounding the tubercle, present a great variety of modifications. It may be slightly injected and softened to the depth of a few lines only; or the softening of the nervous tissue, with or without injection, may extend to the central parts of the brain. In some cases nearly the whole of the cerebellum is reduced to a mere pulp. In a few rare examples, on the contrary, the surrounding nervous substance is more pale and of a denser structure than is natural; sometimes it is soft and of a straw-yellow colour. I have never seen any appearance of abscess or of true infiltration of pus in the immediate vicinity of a cerebral tubercle. Several other lesions of the brain and its membranes might be enumerated, but as they are rather complications than consequences of the disease, I shall not dwell on them here.

Cause.—The deposit of tuberculous matter in the substance of the brain, depends on the same state of the system which gives rise to scrofulous tubercle in other organs; but I am unable to point out any circumstances which will account, in a satisfactory

manner, for the peculiar tendency of young children to this fatal affection of the brain.

It is, as I have shown, chiefly prevalent about the period of the first dentition ; in a few cases the earliest symptoms of cerebral disease occurred after convalescence from an exanthematous disorder, and in several the parents of the child had been cut off by some tubercular disease.

In no instance was the affection confined to the brain. Tubercles or tubercular deposit were invariably found, at the same time, either in the thoracic or abdominal cavities ; but in several cases the greater development of the tubercles in the brain leads to the idea, that the disease commenced in the nervous system.

Symptoms.—The symptoms of tubercle of the brain in children are extremely diversified, and succeed each other irregularly at uncertain intervals ; hence each case has, as it were, a physiognomy peculiar to it, and there is much difficulty in grouping the symptoms together, so as to furnish a general description of the disease.

In five of the thirty cases recorded in the table, there were no symptoms whatever of cerebral disorder. In three cases headache was the only symptom which existed during the chronic stage ; in one deafness, and in one purulent discharge from the ears. We must therefore lay aside these cases altogether, and take account of the remaining twenty cases, in which more than one cerebral symptom was present.

The symptoms occasioned by the presence of tuberculous matter in the substance of the brain may be arranged under two stages, the chronic and the acute.

Chronic Stage.—The duration of this stage varied from six weeks to two years. As I have already remarked, it is extremely difficult to group the cases together, but I have endeavoured to arrange them under the three following classes:—

In the first class the disease commences with headache, and then gives rise to various lesions of sensibility or of muscular power.

In the second class, it begins with convulsions or epilepsy, which gradually terminate in paralysis.

In the third class the first symptom observed is paralysis of one of the limbs.

Class first.—Here the disease commences with headache, which is by far the most constant and characteristic symptom of cerebral tubercle; it formed a prominent feature of the disease in seventeen of the twenty cases.

The headache is often very severe and of an obstinate nature, preventing the patient from sleeping at night, changing the temper, and sometimes eliciting acute cries like those of hydrocephalus. The seat of the pain is generally in the forehead, but in a few cases where the tubercular mass occupied the cerebellum, the pain was seated in the occiput, and extended down towards the neck. This severe pain is, sometimes, the only symptom which exists; in other cases, after having been present for a few

days or perhaps for several months, it is succeeded by other symptoms, to be presently noticed.

The attacks of headache are occasionally associated with vomiting, which recurs on each exacerbation of the pain, and cannot be traced to any disorder of the digestive organs. This chronic or sympathetic vomiting was observed in seven cases. The bowels may be constipated at these periods, but costiveness is less frequent than vomiting, and both symptoms are much more allied to acute diseases of the brain.

The symptoms which follow in the train of headache are extremely varied; they chiefly consist, however, in lesions of the senses, the muscular power, or the intellectual faculties. The child's temper may undergo a notable change, and the intellectual faculties may become dull, but the disturbance or loss of the latter is rarely observed, except in cases of long standing, and towards the termination of the disease.

Convulsions sometimes occur at irregular intervals and terminate in partial or total paralysis of one or more limbs; in other cases we merely find a weakness of certain muscles, not amounting to paralysis; the child stumbles as it walks along, and progression is much impeded: particular muscles also may be affected. Thus in one case the only lesion of the motor power observed for some time was a peculiar convulsive movement of the muscles of the eyeball, by which it was incessantly jerked inwards. In a few cases strabismus occurs.

The symptoms connected with derangement of the sensibility are, loss of hearing, feebleness or total loss of sight, and a diminution of the cutaneous sensibility on one side of the body. The various symptoms just noticed are seldom permanent; the headache often disappears after having existed for several months, and returns again: the strabismus and amaurosis may also disappear, but the paralysis generally persists, especially when the limbs are affected by it.

In the second class of cases the disease commences suddenly with convulsive attacks or an access of true epilepsy: these recur at various intervals, and gradually terminate in paralysis or coma. The convulsions may be general or partial, and are often followed by contraction of one or both extremities on the same side of the body, or the head may be drawn to one side, and remain in that position for a considerable length of time. I have not noticed the deviation of the mouth or tongue, which seems to be characteristic of acute hydrocephalus. The convulsive affections often present some peculiar features. Thus, in one instance, the disease commenced with nervous tremor of the left arm, which lasted for six weeks, and then terminated in epilepsy: in another case, several attacks of convulsions were followed by a peculiar rotatory motion of the head: in a third, they were succeeded by squinting, and a lateral motion of the lower jaw. These convulsive attacks are rarely attended, as the headache is, with vomiting or constipation of the bowels.

Instead of convulsions, the first symptom observed may be a sudden attack of epilepsy, which always terminates after a longer or shorter interval, in general or partial paralysis. Convulsive movements existed in twelve of the twenty cases, and epilepsy in five.

In the third class of cases, the disease commences with paralysis of one or more muscles, or organs of sense. The following is a brief sketch of the symptoms observed in a case of this kind:—The child was four years of age: ten months previously to her admission into the hospital, the right arm became feeble and gradually paralytic, the lower extremities soon afterwards became so feeble, that the child was unable to walk. Four months later, she experienced violent attacks of headache, with vomiting, followed by complete and permanent amaurosis. The patient continued in this state for nearly five months, when she was seized with convulsions and stiffness of the limbs on the right side of the body. The power of the right arm was now restored, but the lower extremities remained perfectly motionless. This child died of confluent small-pox, and after death a tubercle, as large as a hen's egg, was found in the left lobe of the cerebellum.

Where the symptoms of a disease are so diversified it is impossible to draw up any general description that will apply to a majority of the cases. The chief and most important symptom is headache, which occurred in seventeen out of twenty cases.

The most frequent, after headache, are partial or general convulsions, epilepsy, paralysis or contraction of certain muscles or limbs, change of temper, and amaurosis.

Acute stage.—In thirteen of the thirty cases, alluded to in the tabular analysis, an acute stage occurred. The symptoms of this stage are likewise irregular and varied. Sometimes we have general convulsions which terminate in coma and death. They may be so violent as to cut off the patient in a few hours from the date of their attack.

In the majority of cases, the acute stage consists in a succession of symptoms of an irregular character, and more or less allied to those of acute hydrocephalus, or softening of the brain. Thus the acute stage of cerebral tubercle may commence as the third stage of acute hydrocephalus, or the symptoms of the different periods of this latter disease may run rapidly into, and be mixed up with, each other. The duration of the acute stage varies from eight hours to eighteen days.

The irregularity of the symptoms which occur in the acute stage of cerebral tubercle, is, I conceive, a very important point in the history of cerebral disease amongst children. Authors frequently mention the occurrence of anomalous cases of hydrocephalus, of cases in which the first stage of the disease was wanting. Is it not probable, from what has been said, that many of these hitherto unexplained anomalies depend on the complication of acute hydrocephalus, with cerebral tubercle, or, to

speak more correctly, on the fact, that the acute stage of cerebral tubercle generally consists in irregular hydrocephalic symptoms?

The diagnosis of the disease is extremely difficult. This difficulty depends not only on the irregularity of the symptoms, but on the length of time which often separates the appearance of one symptom from another. A lapse of several months may occur before the headache is followed by any other sign of cerebral disease, still our diagnosis must be founded on the succession of certain symptoms. The disease, it may be remarked, almost always occurs in children who manifest signs of a scrofulous diathesis. When, under these circumstances, a child has suffered for some time from severe headache, when the headache is followed by convulsive movements, some paralytic affection, amaurosis, contraction of muscles, occasional vomiting, accesses of fever, and the train of symptoms already mentioned, and when these symptoms succeed each other at various intervals of weeks or months, we have very great reason to believe that the child has tubercle of the brain.

Were there such a disease amongst children as chronic softening of the brain, independent of tumours, &c., it would bear a close resemblance to cerebral tubercle, but I have never seen a case of the kind in children.

The only organic disease then, with which cerebral tubercle is likely to be confounded, is chronic meningitis. The points of resemblance are the

duration of the disease, the change of temper, the occasional headache, and the contraction of muscles, which occur in chronic meningitis. In this latter disease, however, the headache is not so severe or constant: we more frequently observe irregular accesses of fever, and the only permanent lesion of the motor power, which I have seen, was a peculiar flexion of the muscles of the hand and foot.

The paralysis, amaurosis, epileptic attacks, contraction of various muscles, are peculiar to cerebral tubercle, at least so far as my experience goes.

Upon the subject of treatment, I have, of course, very little to say. The disease is necessarily fatal, and all we can do, is to palliate the symptoms as they occur. These depend on congestion, irritation or inflammation of the cerebral substance, excited by the presence of a foreign body. The indications of treatment are therefore clear and simple. Of the various remedies which I have seen employed, the greatest benefit seemed to be derived from setons, or permanent blisters.

CASE OF
LOCAL TUBERCULAR DEPOSIT
UPON THE SURFACE OF THE BRAIN.

By ROBERT DUNN.

READ JUNE 14TH, 1842.

AT a time, like the present, when the physiology of the nervous system is engrossing so much of the attention of the medical philosopher, every contribution to its pathology is important. Impressed with this conviction, though without the hope of adding any new fact to the records of experience, I am induced to submit to the notice of the Royal Medical and Chirurgical Society, the following detail of an interesting case of local tubercular deposit on the superficies of the brain which lately came under my observation. To the experienced members of the Society, the case may offer little on the score of novelty, however much to myself, and it is therefore not without hesitation that I presume to submit it to their notice.

The patient was a little boy, two years old, a fine intelligent child. His mother, who is a very sensible woman, informed me, he had been a healthy child from the time of his birth: he had suffered

little during dentition—at eleven months old he had twelve teeth, and could then walk alone. Altogether, she considered him a forward child, very active and of quick perceptions. There was one circumstance, however, with which both his father and his mother had been particularly struck, and that was a change in the disposition of the child, which they had observed to have been gradually taking place for more than four months previous to his last illness. From being a happy, placid child, he had become irritable, peevish, and petulant,—impatient of control,—very determined to have whatever he set his mind upon, and not to be driven from his purpose; in a word, to use their own language, he had become a most *obstinate* and *self-willed boy*. So marked, indeed, was this change of disposition in the child, that it had become a subject of serious consideration with his parents, whether it was to be attributed to some latent disease, under which he might be labouring, or to mere infirmity of temper. But as the child continued to eat, drink, and sleep well, and did not appear to be suffering from any bodily complaint, which they could detect, they did not take any medical opinion, but contented themselves with endeavouring to correct, by moral discipline and management, what they were inclined to consider rather as an infirmity of the mind than of the body.

On the 7th of October I was suddenly called to attend him, and he died in about six weeks, on the 15th of November. He had awoke, as usual, between six and seven o'clock in the morning, and

whilst amusing himself with his sister, in bed, and in the act of attempting to turn over, his left hand began suddenly to jerk or twitch convulsively, but the convulsive twitching did not extend beyond the wrist. Alarmed at the sight of this, his mother immediately sent for me. Beyond the continued convulsive jerking of the hand, the child did not appear to be in any other way affected. I found him laughing and talking, perfectly sensibly, and to all appearance, in every other respect, quite well. There was no preternatural heat of skin, no acceleration of pulse, nor any indication of general disturbance. On the application of hot water and mustard to the hands and feet, in about twenty minutes the jerking subsided, and for the remainder of the day the child appeared to be well and in good spirits. I gave him a brisk mercurial purgative,—a grain of calomel every four hours, and applied four leeches behind the right ear. At my second visit in the course of the day, I was told by his mother that the child had fallen down stairs about a fortnight before, but the circumstance had been studiously concealed from her by the nurse, and she was unable to say whether he had fallen upon his head or not. There was no swelling upon the scalp, nor any contused appearance, which I could perceive. She had observed, however, that the child had been more fretful and self-willed from the time of the fall. The day previous to his attack, he had also let rather a heavy box fall upon his left foot, and had cried almost incessantly for three hours after-

wards. The nail of the great toe was quite black, but there was no swelling nor tenderness to the touch.

At nine o'clock on the following morning the jerking returned, and extended to the elbow joint, but subsided in the course of half an hour, on the application of the mustard and water as before. On the 9th he had a slight return at seven o'clock, but so slight that I was not sent for. From the periodic nature of the attack—the local character of the symptoms—the absence of fever and constitutional disturbance, I was induced to suspend the calomel, and commenced giving six grains of the sesquicarbonate of iron every four hours. The next day passed without any return of the jerking, but I observed an imperfect paralysis of the hand and arm. The child too gave evidence of constitutional disturbance. He was irritable and fretful, with a quick pulse, hot skin, dry tongue, great thirst, and other symptoms of general pyrexia. He complained too of pain about the head, and frequently applied his hand to the right temple. I withdrew the iron, gave a sharp purgative, saline medicines, applied an evaporating lotion to the head, and resumed the calomel. On the 11th, at four o'clock in the morning, he had an attack of convulsive jerking, and another about three o'clock in the afternoon, a very severe one, which was not confined to the hand and arm, but involved the whole of the left side and lower extremity in convulsive agitation, with twitchings of the eye and angle of the mouth.

The attack lasted two hours, leeches were applied to the right temple, a blister to the nape of the neck, and the other measures continued. During the next two days, the 12th and 13th, he had two fits each day of a still more severe character. Towards the termination of the fits, and they each lasted two hours, he cried and even screamed violently, but throughout their continuance he was sensible, and could at times be soothed by kind attentions from his parents. The fits were followed by profound sleep for several hours, and the side was left partially paralysed. At one o'clock in the morning of the 14th, I was called up in consequence of a more severe attack than any he had previously had, and which lasted for nearly three hours. The convulsive agitation affecting the whole of the left side, from hand to foot, was violent. At times he screamed out, and then again was quiet: during the whole paroxysm he knew every one around him, but eagerly clung to his father, as if in dread. The head was shaved, and ice applied. About noon on the same day, I had the advantage of a consultation with my friend Dr. Todd, of King's College, just as another fit had subsided, which had been attended with this peculiarity, that the convulsive motion, contrary to its former course, had begun first in the foot, and from thence had gradually extended up the side to the arm and hand, leaving the leg paralysed and helpless. I had the benefit of Dr. Todd's assistance in the future treatment of the case. He agreed in the opinion which I had formed, that the child

was suffering from irritation of the membranes, or, more properly to speak, inflammation of the surface of the brain, and further offered it as his conviction, that the superficial inflammation, which was inducing the convulsions, was excited by the presence of tubercle, an opinion which the *post-mortem* inspection fully verified. Three grains of true James' powder were added to each dose of the calomel, and given every four hours as before, half a drachm of strong mercurial ointment was ordered to be put into each arm-pit night and morning, and the ice to be steadily applied. About half an hour after Dr. Todd was gone, the child had another fit, the most severe of all. The attack began as usual, first in the hand, and gradually extended upwards. The leg for some time remained perfectly still, extended and rigid, whilst the upper parts of the body on the same side were in a state of violent agitation. At length it partook of the same convulsive motion, and the whole of the left half of the body was dreadfully convulsed. During the paroxysm there were occasionally slight remissions in the violence of the agitation, attended with alternations of screaming and silence, with a perfect knowledge of every one around him. From this time to the 22nd, an interval of a week, he had no return of the fits. Occasional jerkings of the hand and foot were observed, and at those times, and more especially at their beginning, the child appeared to be in great dread, and clung eagerly to his parents. The paralysis was not persistent; but he was dull and

heavy, sleeping many hours at a time, yet perfectly sensible when awake; very anxious to take food, and most determined to have whatever he took a fancy for. He had a quick but weak and irritable pulse, with a dry, hot skin, and great thirst. The calomel and James' powder and mercurial ointment had been regularly persisted in, but without any appearance of salivation. On the 22nd he was seized with a kind of cramp or spasm—now in the hand, then in the foot,—at other times in the calf of the leg, muscles of the thigh or side, and from which, during its continuance, he seemed to suffer dreadfully. The violence of the pain, as in ordinary attacks of cramp, which it most closely resembled, was in some degree relieved by active friction. He was afflicted in this way for three or four days, when these spasms subsided, and left him with decided symptoms of effusion. The pupils, however, were not permanently dilated. They would be so for hours together, and then become contracted. The heat of the scalp, which had been great from the beginning of the constitutional irritation, was now not above the natural standard. He was dull and heavy,—in a state almost approaching to coma,—taking little if any food, and often sick. For some time he continued in this state, and appeared gradually sinking, when he was again seized with screaming fits, and afterwards with convulsive motions in the right arm and leg. The convulsions began in the arm and leg with a jerking motion, very much

in the same way that he was first affected, when the whole side of the body afterwards became agitated.

Sometimes the convulsive action extended to the left side. The arms and legs on both sides would be drawn up, and become rigid and convulsive, the head at the same time drawn backwards. He had attacks of this kind with slight intermissions throughout the day before he died, screaming violently at intervals. The head was hot—face flushed—pulse hurried—pupils dilated—eyes squinting and turned inwards,—insensible to light—eyelids constantly open, and only at times recognising the persons about him. On the subsidence of one of these attacks he gradually sunk, at a quarter past four o'clock, on the morning of the 15th of November.

I was assisted in the *post-mortem* examination of the brain by Dr. Todd and Mr. Bowman, of King's College, and I am indebted to the kindness of the former distinguished physiologist for the following account of the morbid appearances.

The scalp was pale and bloodless, like the rest of the body, which was much emaciated. The dura mater healthy. The vessels on the superficies of the brain were tinged with dark blood, but there was no subarachnoid effusion. The arachnoid cavity was natural. On the surface of the right hemisphere of the brain, under both the arachnoid and pia mater, there was a deposit of tubercular matter,

in patches of irregular shape and size, but the whole occupying a surface of about two inches square. The deposit was most abundant on the surface of the convolutions, it nevertheless descended into the sulci between them,—a circumstance which proved its connection with the deep surface of the pia mater. The cortical substance of the brain in contact with the tubercular matter was reddened and greatly softened, and, on microscopic examination, evinced a nearly total destruction of the tubules in it, a great enlargement of the proper globules of the gray matter and of the pigment granules which adhere to them. The softening extended a slight way into the subjacent white matter. On the edge of the left hemisphere, corresponding to the diseased patch of the right, a slight tubercular deposit had taken place in a similar manner, producing a red softening of the gray-matter in contact, but not occupying more than half an inch square in surface. The ventricles contained more water than natural—about double—and did not collapse when laid open. The cerebral substance throughout, excepting at the diseased part, was firmer than usual at the patient's age. This firmness was no doubt owing to the compression of the fluid, which probably at an earlier period of the disease was more abundant.

I have now submitted to the Society a plain narrative of the case, and it is one in which I have been personally much interested. To attempt a critical analysis of the symptoms in connection

with the morbid appearances, would involve me in a labyrinth of conflicting opinions, but I may be permitted to make a few cursory remarks. And first, it seems reasonable to infer that the fall which the child had, if not the blow upon the toe, had operated as an exciting cause in setting up diseased action about the tubercular deposit, and that the local affection, the simple twitching of the hand and jerking of the arm, was the consequence of such action. Admitting this, the extension of the irritation of the membranes thus induced would lead to the constitutional disturbance which followed, and to the increase of the convulsive agitation.

It is, I believe, generally admitted that irritation of the membranes and cineritious substance of the brain, is attended with convulsions, without decided or persistent paralysis, and that it requires the medullary matter to be involved to render the paralysis permanent. My own observation, so far as I have had an opportunity of investigating this interesting subject, accords with this opinion. In the present case, the paralysis was not persistent until after the violent attacks of cramp, and from this time may probably be dated the implication of the medullary substance in the inflammatory process. Admitting the justness of the view, that red softening of the brain is the result of chronic inflammation of its substance, persistent paralysis was not to be expected until the inflammatory action had involved the medullary substance.

On comparing the two hemispheres, the diseased portions and parts adjacent, the left presented evidences of more recent inflammation than the right, and this was to be expected from the history of the case.

A CASE OF
STRICTURE OF THE TRACHEA.

By W. C. WORTHINGTON, Esq.,

SENIOR SURGEON TO THE LOWESTOFT INFIRMARY.

COMMUNICATED BY JAMES COPLAND, M.D., F.R.S., &c.

READ JANUARY 11TH, 1842.

CHARLES NEWRICK, aged 49, an agricultural labourer, of spare habit of body, first came under my notice in August 1837. During the early part of his life, he had enjoyed tolerably good health, with the exception of occasionally suffering from slight cough, which was sometimes increased by the employment of thrashing, owing to the dust rising from the corn, and irritating the fauces and respiratory passages. In 1833 he contracted syphilis, for the cure of which, mercury had been administered, but not to an immoderate extent. At this time he experienced an increase of cough, and soreness about the throat, attended by slight difficulty of swallowing. His general health also began to decline, as denoted by occasional feverishness, impaired appetite and loss of flesh. These symptoms progressively and steadily advanced until the time of my first seeing him, (August 1837,) when I found him suffering from the following symptoms :

During the last twelve months he had been confined to the house ; he was much emaciated, was very feeble, and complained of want of appetite, and of uneasiness about the throat. His state of breathing more particularly arrested my attention, as regarded both the peculiarity of the noise attendant upon inspiration, and the very painful effort required for its accomplishment. In the ordinary act of inspiring, a sound was produced, exactly resembling that produced by an unsound horse, called a roarer or whistler, and this sound at once suggested the idea, that, in the act of inspiring, the air passed through a tube of preternaturally small diameter. Each inspiration occupied ten seconds, the chest expanding only six times in a minute. Expiration was performed in much less time than inspiration, with much less exertion and with diminished intensity of roaring. Upon examining the muscles of the throat and neck, I was forcibly struck with their violent action, more particularly with that of the sterno-hyoidei and sterno-thyroidei muscles, together with the thyro- and omo-hyoidei and other muscles of the larynx, whilst the trapezii, intercostales and dia-phragm were comparatively much less acted upon. From this circumstance, aided by the other symptoms, I could not fail of concluding, that the impediment to the free passage of air into the lungs existed within the trachea or larynx, but I could not satisfactorily determine as to which of the two was principally affected. Vocalisation was very imperfect, the sound of utterance being hoarse and rough. A

troublesome cough was present, accompanied with a copious muco-purulent expectoration, the checking of which tended, in some degree, to increase the difficulty of breathing. The patient complained also of an offensive discharge from the nostrils, followed by occasional exfoliation of osseous matter, which appeared to be connected with disease of the inferior turbinated bones. The pulse was small, quick and irritable, but no well-defined symptoms of hectic fever had yet supervened. The larynx, when moderately compressed, did not evince pain and it was only when an increased force was used that uneasiness was occasioned. The mouth and fauces did not present any marks of disease, either of the tonsils, uvula or palate, nor did these parts appear to have been the seat of previous ulceration. A slight roughness of the epiglottis was detected by the finger, but the stethoscope applied over the chest furnished no indication of disease of the lungs.

I was convinced that little or nothing beyond a palliative treatment was applicable to this man, and I ordered him a light nutritious diet. I prescribed some sedative and expectorant medicine, placed him as an out-patient of the infirmary, and occasionally visited him. Towards the autumn of the same year, (1837,) he so far regained strength as to walk into the air and to present himself at the infirmary, and he continued to do so, occasionally, for nearly four years, in the course of which time his local symptoms did not vary much. The peculiar roaring sound never left him, nor the abnormal state of his voice,

both symptoms maintaining the same character as when I first saw him. He was generally worse when the atmosphere was damp and cold, and when exposed to the night air. In the winter months he was mostly confined to the house, but as the weather became warmer, he could, if allowed to take his own time, walk about three or four miles in the day. Whatever promoted expectoration, usually produced a temporary relief of the dyspnœa. He described the expectorated matter as having sometimes assumed an arborescent appearance. His death took place the 15th March 1841. The whole of the week preceding the event, he had been as well as usual. On the morning of the day of his death, whilst taking some bread and milk for breakfast, some particles of this food fell into the larynx, and he was suffocated in less than five minutes.

Autopsy twenty hours after death.—The muscles of the anterior aspect of the neck were found unusually developed, their fibres being of a deep red colour, and offering a degree of rigidity when cut into, not commonly met with in that situation, and in a subject so slender and emaciated as he was. This development of these muscles manifestly proceeded from the increased action they had performed for a considerable period before death, in overcoming the impediment to the passage of air through the trachea. The lungs were moderately distended, were crepitous, and free from emphysema. The bronchial tubes were filled with a viscid mucus, but in no respect

morbidly dilated. The glands situated about their roots were enlarged, and one of them particularly, just at the bifurcation of the trachea, was found to contain calcareous deposit, but did not appear to have produced any undue pressure upon the parts around it. The heart was smaller than is usually met with in adults, and the pericardium contained about two ounces of serum.

The trachea was detached just below its division, and removed, together with the larynx, for the purpose of close inspection. Having deprived them of their surrounding tissue, a singularly well-defined constriction, constituting complete stricture, was discovered just below the cricoid cartilage, the calibre of the strictured portion not exceeding that of a crow-quill, and at once disclosing the principal cause of the distressing symptoms during life. This partial obliteration of the canal was independent of any adventitious membrane, the product of either acute or chronic inflammatory action, as in croupy affections, and of the existence of any of the usual marks of inflammation. The tracheal rings, at the point of stricture, had entirely disappeared, and had been converted into a fibro-cellular tissue, whilst those below the constriction were much dilated beyond their natural circumference, and had also to a certain extent lost their elastic and cartilaginous character. The larynx, when held perpendicularly, presented a more flattened appearance than natural, owing to the approximation of the alæ of the thyroid cartilage. This altered shape may probably be re-

garded as a consequence of the stricture in the trachea, and it no doubt in some degree added to the difficulty of breathing. The epiglottis showed marks of having been attacked with ulceration at some former period; the only vestiges of it remaining were two or three small irregular vegetations. The lining membrane within the larynx was slightly thickened, pale, and rather thickly smeared with a viscid muco-puriform fluid, but it presented no appearance of ever having been the seat of ulceration.

It is extremely probable that the tracheal disease had a syphilitic origin ; and that the absorption of the cartilaginous rings of the trachea in the seat of stricture had caused the constriction, the contractility of the circular or transverse fibres of the membranous portion of the trachea having been no longer antagonised by these cartilaginous rings. This seems an obvious solution of the production of the organic lesion displayed in this case, which illustrates several points in the mechanism and physiology of the respiratory passages. I have never met with, nor read of, a similar case to the present : and my friend Dr. Copland, when lately in this part of the country, informed me that he was not acquainted with any instance on record, in which the same changes as the above had been observed upon dissection.

Note by Dr. Copland.

By the permission of Mr. Worthington, the trachea, sent by him with his paper to the Society,

was slit open in the middle of the membranous portion by Mr. Shaw.* Its inner surface presented superficial cicatrices extending both below and above the strictured portion. The cicatrized surface was smooth, although somewhat irregular, and of a serous or polished appearance; showing that the ulceration had healed long previously to death. The cartilaginous rings of the trachea were entirely absorbed from about half an inch below the thyroid cartilage downwards to the extent of about three inches. The upper part of the trachea, that had thus lost the antagonising power to the transverse fibrous structure, was constricted so as to admit only a crow-quill. The inner surface of the constricted part was quite smooth. The larynx was sound; but the inner surface of its base and the commencement of the trachea presented superficial, slight and old cicatrices. The trachea was much dilated from a little below the strictured part, to the bifurcation, and its internal surface presented the superficial cicatrices already mentioned.

* Plate IV. represents the trachea slit open.

HISTORY
OF A REMARKABLE CASE OF
TUMOURS,
DEVELOPED ON THE HEAD AND FACE;
ACCOMPANIED WITH A SIMILAR DISEASE IN THE ABDOMEN.

BY HENRY ANCELL,
SURGEON TO THE WESTERN GENERAL DISPENSARY.

READ JUNE 28TH, 1842.

FRANCES MASSINGER presented herself as a dispensary patient in May 1840. She was rather short and thin, her eyes blue, and skin of a very dusky yellow tinge; aged fifty-two, and unmarried.

The greater part of the scalp and face was loaded with solid tumours.* Those on the scalp were externally of a very florid colour, smooth, glossy, and denuded of hair. They varied from a pin's head to a horse-chesnut in size, and from a nearly globular to an irregular flattened spheroidal form, with a tendency to assume a mammillated outline. A few tumours, perfectly round in shape, and of a violet hue, were interspersed; forming a remarkable contrast to the former, and never attaining so large a size. Their colour evidently depended upon their vascu-

* See Plate V.

larity ; vessels containing red blood being observed ramifying upon the parietes of those which were red, and larger vessels containing dark blood upon the violet ones; but their texture possessed a considerable degree of transparency, and there was, accordingly, an appearance of greater general vascularity than really existed. They were deprived of much of their colour on slight compression, but on suspending this the blood returned rapidly, so as to restore them to their natural hue. Some were sessile on broad bases. Others, including many of the largest, were appended to the scalp by short thick peduncles. One of the latter having been removed by incision, and divided diagonally, was nearly of a cartilaginous consistence. It exhibited a smooth, shining, semi-transparent texture, of a very pale pinkish hue, and was apparently homogeneous, except that a few distinct vessels, from which blood could be easily pressed, ramified through it. There was much greater vascularity in the investing skin than in the tumour itself. The scalpel employed was not rendered in the slightest degree greasy, and scarcely even soiled. The portions of the scalp from which the tumour was removed bled rather freely. One of the blue variety had been in the right ear for years, completely filling the meatus, and occasioning deafness. These tumours sometimes itched ; considerable pain was excited by pinching them ; and the patient's statement was, that "just before rain they shoot and leap a good deal," but otherwise they were free from uneasiness. Tumours of this

nature covered a great portion of the hairy scalp and forehead, and numerous small ones were scattered over the face, but here they were mixed with tubercles, which differed from them in their general characteristics, as will presently be described.

One of these tumours was re-examined after being kept about a fortnight in Goaltby's saline solution. The texture now presented more of a granular appearance; and although the integuments were very thin and semi-transparent, they formed an indistinct capsule, which could be torn from the subjacent parenchyma, leaving a very rough surface. A small portion of the substance from the interior having been opened out with a needle, placed between two plates of glass, compressed into a very thin stratum, and examined under the microscope with a glass an eighth of an inch focus, had, in the mass, an obscure cellular structure, and surrounding and attached to it were several distinct, nearly circular, nucleated globules, resembling those figured by Müller as characteristic of one variety of encephaloid disease.

The skin of the face, neck, and shoulders had a remarkable tawny aspect, and was very coarse and rough, the roughness depending almost entirely upon numerous tubercles before alluded to, many of them extremely minute, others as large as a split pea, and of all intermediate dimensions. They were most thickly set about the nose, eyebrows, and ears. The larger had all the characters of lenticular tubercles, depending upon hypertrophy of the dermis,

since they were smooth and very hard, of the same colour as the surrounding skin, and no sebaceous matter could be pressed out of them. Most of the smaller ones were manifestly follicular elevations, such as accompany other cutaneous diseases ; they were a few shades whiter than the surrounding skin, resembling acne punctata without the black point, and exuding on pressure a white substance, similar to curdled milk.

The roughness and colour of the skin, the deep furrows on the forehead, the hair on the scalp being thinly set, coarse, and straight, there being very little hair on the eyebrows, an overhung eyelid, with thickening of the external ear, and of the skin between the alæ nasi and face by thick crops of tubercles, contributed altogether to give to the individual somewhat of that peculiar cast of countenance which has been delineated as characteristic of elephantiasis.

She came from Leicestershire ; for many years worked as a labouring woman in the fields, and she stated that the disease appeared first at about fourteen or fifteen years of age, but a great many small tumours have grown during the last year or two. Her family history is by no means the least remarkable feature in the case, not only as respects the hereditary transmission of the disease, but from the fact that the females seem to be prolific in an extraordinary degree. According to her own account, corroborated by several of her relations, her grandmother was affected with similar growths on the head ; her

mother had a large one in the same locality ; she died dropsical at seventy-nine years of age, leaving a numerous family. A younger sister has had a mammary tumour extirpated ; but she resides in the country, and I have been unable to collect any particulars respecting it.

Her eldest sister, aged sixty-four, is perfectly free from the disease. She has had fifteen children, most of whom are married ; two of her daughters have each twelve children ; and she has more than forty grandchildren and four great-grandchildren living ; the whole of this branch of the family being exempt.

Another sister, aged sixty-two, is affected with a large crop of tumours on the head, forehead, temples, and about the ears. I have had frequent opportunities of examining them. They resemble the larger vascular tumours in the former case, but there are none of the smaller tubercles. It is curious that there is a solitary one, about the size of a walnut, differing totally from the others. It is round, quite moveable under the scalp, rather soft, and the investing integument is quite natural, and covered with hair. Its appearance is that of an ordinary steatoma, but on puncturing it with a lancet, a quantity of very tenacious, transparent, gelatinous matter was pressed out, which presented microscopically a very different appearance from that of those before described. It had not the distinct cellular structure belonging to the more solid tumours, but seemed to consist of transparent laminæ, irre-

gular in outline, without either the nuclei or striæ which Müller represents as characteristic of varieties of cancer. This individual is also the mother of a large family, several of whom, including two sons, are similarly affected. The children of the latter are at present free from the disease.

In no instance that I could discover has the disease been transmitted by the males of the family.

I am informed by Mr. Bryant, that the subject of the present memoir applied to him in July 1826. The tumours on the scalp at that time resembled tomatoes. She stated that the late Mr. Rose, of St. George's Hospital, had previously extirpated a few of them. The remaining ones having become troublesome, Mr. Bryant at one sitting removed sixty. The latter gentleman assures me that their characteristics were then different; they were less firm; they did not approach a cartilaginous consistence; and on making a longitudinal incision, their contents were easily turned out. A few were removed by ligature, but this operation was attended with a great deal of irritation. The scalp healed in a few weeks, and the tumours were all reproduced within twelve months; the evidence that they had sprouted from under the cicatrized skin being conclusive, from the fact, that among those which came under my observation, many were sessile, compressed, and flattened, and marked by the cicatrices across their convexity, as it were binding them down.

On first placing herself under my care, Massenger informed me that she had enjoyed uninterrupted good

health for a series of years ; but about five months previous to her application to me she discovered something hard in the abdomen. She commenced and ceased menstruating at the usual periods of life. On manual examination, an uneven tumour presented itself, occupying the right hypochondriac region, and at times she had experienced pain there, but otherwise she described herself as being quite well. Her pulse was at this time rather weak and small, her tongue perfectly clean, and the functions of life apparently well performed. After the lapse of a short period, however, ascites supervened, and proceeded to such an extent, that the tumour became imperceptible ; this being followed by anasarca of the lower extremities. To a copious effusion of serum from the anasarcous limbs, succeeded a total retrocession of the fluid from the abdomen, so that the tumour in the latter became more prominent than ever. The pulse was now weaker and smaller, and it became quick. The tongue continued clean, and the functions of the alimentary canal were well performed until a very short time before her death. The anasarcous limbs inflamed, ulcerated and sphacelated. The action of the lungs continued perfect, and she retained her mental faculties, with a remarkable cheerfulness of disposition, till the last ; but she sank, gradually exhausted, and died in February 1842, being twenty-one months after her first application at the dispensary ; neither the cutaneous affection or the abdominal tumour having

undergone any perceptible variation during that period.

Inspection thirty-six hours after death.—The deviations from healthy structure in the interior of the body were observable chiefly in the abdomen; and in particular, the peritoneum exhibited a most extensive and remarkable state of disease. This membrane was generally opaque, but with a shining surface. The portion lining the abdominal parietes was very considerably thickened and indurated: it was also studded with myriads of tumours, projecting into its cavity, many of them not greatly varying from the size of peas, and the whole producing a yellowish granulated appearance. The peritoneal surface of the diaphragm was thickened and studded with similar tumours, either in patches from the size of pins' heads to that of small peas, closely huddled together and compressing each other; or more thinly set, very minute, white and semi-transparent. The general aspect of these growths might be likened to that of crops of vegetation, where the seed has been sown thicker in some places than in others. The minute specks were sessile, and in many instances scarcely, if at all, raised above the surface; but all the larger ones tended to become pendulous, and some were completely so, hanging by short necks.

From the transparency of the surface, and the circumstance that in all probability there was no elevation at the site of the most minute granules,

there can be little doubt that the affection was seated in the cellular aspect of the peritoneum. The vessels in the peritoneal coat were much more numerous and distinct where the morbid deposit occurred in the greatest quantity, and in many instances there were large vascular lines running parallel to each other, and terminating in patches of it, with distinct minute branches to individual tumours. The great omentum throughout its extent presented an appearance as if the fat had been absorbed, leaving a very delicate frame-work of cellular tissue, with blood-vessels ramifying, and numberless granules, about the size of pins' heads, scattered over it, somewhat resembling a choroid plexus on a large scale. There were a few small rounded masses of yellow fat remaining, with specks of the morbid deposit on their surfaces. Interspersed throughout the tissue of the omentum, besides the granules already described, there were larger masses, resembling in size and general appearance, the smaller vascular tumours on the scalp, but they were more constantly of a globular form, some bearing a very close resemblance to schoolboys' veined marbles, and some being nearly white. Many were suspended only by one or two large inferent and efferent vessels, with a few loose shreds of cellular tissue. A portion of the omentum having been injected and some of the tumours divided, the injection was found chiefly on the surface, in what might be deemed an obscure capsule, but a few injected vessels could be traced to

the interior. The mesentery was in a condition very nearly similar to that of the omentum, but in the former there were masses much larger and more irregular in outline, which also seemed to hang by the vessels of the part. When cut into, these growths were found to possess a consistence as firm as cartilage, a variegated red grey yellow and greenish colour, an obscurely cystiform structure, and slight but manifest vascularity. There were a few mesenteric glands, slightly hypertrophied, but beyond this no glandular disease could be discovered. The surface of the intestines was speckled with the minute granules, much more thinly set than in the situations before referred to.

The peritoneal coating of the superior surface of the liver was thickened, opaque, and free from the deposit; but attached to the anterior edge of this viscus, in a manner suspended from it, and extending beneath the right lobe, displacing and pressing the gall-bladder downwards into Glisson's capsule, a very large mass was found, weighing perhaps two pounds. It had evidently been deposited between the layers of peritoneum at the anterior edge of the liver, since the membrane was continuous from the surface of the organ over the tumour, the whole of which it enclosed as a capsule. The thin edge of the liver was however spread to a considerable extent over the upper and anterior parts of the surface of the tumour. The gall-bladder was stretched along its under surface. Two or three small deposits were also observed

near the larger mass, but isolated in the substance of the organ, and a great number of the pendulous tumours were attached to the loose cellular membrane which surrounded these parts and to that which constitutes Glisson's capsule. The divided surfaces of these smaller tumours presented an appearance similar to those of the vascular tumours on the head and face. The remaining portions of peritoneum, including the coat of the stomach, spleen and kidneys, and the viscera themselves, were apparently healthy.

The large tumour was of an irregular ovoid form, with a nodulated surface. It possessed a very firm texture. The scalpel with which it was divided diagonally was not soiled in the slightest degree. The tints presented by the cut surfaces were extremely varied, green and greenish yellow predominating. It was nearly white, and almost cartilaginous at its centre, and there were distinct fibrous radii, of irregular dimensions, proceeding from the centre towards the circumference.* The remainder of its substance was made up of large lobules, varying in size, and these again presented an indistinctly cystiform aspect in their interior and outline. Some of these lobules appeared as if originally isolated, but being involved in the general capsule, their growth and expansion outwards was thereby limited, and they had gradually approached each other internally, until they formed

* See Plate VI.

one compact mass by compressing the intervening cellular tissue into fibrous septa. Blood oozed on pressure, from a good many red points, but the tumour could not be called highly vascular.

A considerable quantity of limpid fluid was found in the ventricles and between the membranes of the brain, and the arachnoid was slightly opaque. The thoracic viscera and membranes were healthy. A tumour about the size of a pea, and another considerably larger, were met with in the substance of the uterus, but were not minutely examined.

Some of the profession who saw the external tumours designated them molluscum, others vascular sarcoma, and the terms scirrhus, fungoid growth, encephaloid in a crude state, albuminous sarcoma, and colloid cancer, have been applied to the internal disease. Mr. Kiernan made the section of the large mass, but declined giving it any name. I have accordingly avoided any attempt at classification, but submit a description of the case to the Society, with two accurate drawings, hoping it will prove acceptable, as a contribution towards ~~a~~ more complete history of diseases called malignant.

Remarks.—These relate more particularly to the character of the vascular tumours on the head, to that of the internal disease, and to the question of their identity.

The case is analogous in many interesting particulars to several of those which authors have

designated *molluscum*, the only comprehensive treatise on this subject in the hands of the profession being a work by Dr. M. M. Jacobovicz;* but in the cases which he has collected, the cutaneous tumours and the histories which accompany them, differ so widely, that it is necessary, for the purpose of comparison, to refer to each of the three varieties of the genus which he has attempted to establish.

The first variety, the *molluscum fungosum*, comprises the *molluscum pendulum* of Dr. Bateman,† and a cutaneous disease endemic in Amboyna and the Molluccas, designated by Alibert *mycosis fungoides*. It includes other forms of the mycosis of the latter author, also the mollusciform cancer of Rayer, and the celebrated case of Reinhardt published by Tilesius, to which the generic term was originally applied. The *molluscum contagiosum* of Bateman‡ constitutes the second variety, under the designation *tubercula atheromatosa*. And the third variety, or the *tubercula variegata*, is founded on a single case described by Dr. Jacobovicz himself.

There are other cases recorded by authors as instances of *molluscum*, and in particular that of Latham, which occurred recently at the Westminster Hospital, and has been described by Mr. F. H. Thomson.§ It can scarcely be doubted that diseases

* *Recherches Critiques*. Paris, 1840.

† *Delineations of Cutaneous Diseases*, Pl. LX.

‡ *Lib. Cit.* Pl. LXI.

§ *Lancet*, May 15th, 1841, p. 256.

of a very different nature have been thus classed together, and it is by no means surprising that Dr. Jacobovicz should avoid a definition, having found it necessary to render his general description of the genus very comprehensive.* Two circumstances strike the mind forcibly on perusing these cases. In the first place, the histories are all very imperfect, and our knowledge of their nature and causes very defective; and secondly, the relations which evidently subsist between them and maladies usually designated malignant, have been very little investigated.

Although I am unacquainted with any more appropriate nosological position than the genus *molluscum* for the case of Massenger, the external tumours do not correspond very closely, in their history and general characteristics, with any of those which have been referred to. In their dimensions and form,—apparently unconnected with any destructive constitutional disorder, and having no obvious natural termination,—they answer to Dr. Bateman's description of *molluscum pendulum*, but they differ from this, and also from the contagious variety of the same author, in possessing greater vascularity and sensibility, and being nearly uniformly firm in texture, instead of containing an atheromatous matter or a milky fluid. They differ from all the cases cited, except one, in their particular locality, and from the complaint described by

* Lib. Cit. p. 2.

Bontius, (Mycosis fungoides of Alibert,) the case of Lucas, recorded by the latter author, and the tubercula variegata of Jacobovicz, in having no tendency to suppurate, ulcerate, or form crusts, and from the latter they also differ in size, colour, mode of development, and in the appearances which they ultimately assumed. They agree with the case described by Rayer in the circumstance of a coincident internal affection of a similar nature; but in his case the lymphatic glands were affected, the internal seat of the disease was the mucous membrane of the stomach, where the tumours proceeded to suppuration, and other internal organs contained cerebriform matter. Although there was no wallet-like appendage, the case corresponds with that recorded by Mr. Thomson in the existence of a slight tendency to hypertrophy of the dermis, or of the cellular tissue immediately subjacent, and in the circumstance of the development, after the continuance of good health for a series of years, of a very large mass of the morbid growth at one particular site, this again being unattended for a long time by any decided derangement of health. In their external appearance the tumours correspond most closely with those which occurred in the case of Reinhardt, but here again we meet with distinctions more or less important; in the case before us the tumours were confined to a particular part of the body instead of being universally distributed; there was no wallet-like appendage, no discharge, no central aperture, and no symptoms of constitutional irritation.

If we could regard the pale dermoid tubercles and the follicular elevations as having an essential connection with the production of the vascular tumours, the analogy would be strengthened between this case and many of those which have been described as molluscum : but these occur so frequently without any other cutaneous affection, and so frequently accompany diseases of the skin, other than the tumours in question, that they may be looked upon as an accidental association ; a view of the case which is supported by the fact that the surviving sister affected with the vascular tumours is at the same time perfectly free from these cutaneous changes.

On the other hand, the external tumours described in this memoir correspond in their firmness and density, in their semi-transparent glossiness, in their adhesion to the cutis, and in their liability to return after extirpation, with the most accurate descriptions of scirrhus ; but they approach encephaloid disease in being rather more vascular, although their vascularity is in a great measure confined to their surface. They appear to agree also with the latter variety of carcinoma, in their intimate microscopical structure and the form of their component cells. It is remarkable that one tumour in the midst of the others, on the head of the surviving sister, should possess the gelatinous consistence and probably the microscopical structure of colloid cancer. Nor can we overlook the fact mentioned by Mr. Bryant, that sixteen years ago they were all softer, and in other respects of a different character. Yet there is no

evidence before us, (although, in the case which has been described, these tumours were known to exist forty years,) that they are possessed of any inherent tendency to destruction, this tendency being admitted as a part of the definition of carcinoma.*

Similar remarks apply to the diseased mass in the abdomen. In the characters above referred to, in the scalpel employed for its division remaining unsoiled, and in its central, fibrous and radiated structure, this answers to scirrhus, while in the magnitude of the larger mass, in the diffusion of the deposit, and in the more distinct cystiform appearance of its lobules, it approaches encephaloid or fungoid disease. On microscopical examination, the peritoneal masses exhibited a structure made up of cells. I failed in obtaining a sufficiently distinct view of these cells to enable me to describe them, but Dr. Hodgkin, who examined them at an early period, and before they had been put into the saline solution, informs me that they are nucleated, and larger and more irregular in outline than those of normal structures, thus agreeing with malignant growths in general. Although the internal disease, as well as the cutaneous affection, must have existed a very long time, there was not the slightest attempt at maturation, nor were the symptoms which occurred during the last illness of the patient, or the circumstances which preceded her death, at all allied to those which constitute the cancerous cachexia.

* Walshe, Cycl. of Practical Surgery, Art. Cancer.

I was kindly referred by Dr. Hodgkin to some preparations of peritoneal tumours, very closely resembling the present, in the museum of Guy's Hospital; the man from whom they were taken being twenty-one years of age, of strumous appearance, and an irritable and morose disposition. He remained in the hospital but a short time. The digestive functions were much deranged; pain in the abdomen occurred, associated with ascites; there was a weak and small pulse, and he gradually sank. The peritoneum was found to be almost universally covered with nodulous pedunculated tumours of great variety in size and colour; the liver was loaded with "scirrrous, or remarkably hard fungoid matter, presenting, in places, the form of compound cysts," and bony matter was deposited in some parts, the saw being required for its division.

Within a few years past I have made several *post-mortem* examinations, in which a diseased growth was met with in the abdomen, very closely resembling, if not identical with that which has been described. I allude to them in this place, because, to the best of my recollection, aided by a few rough notes, there was no attempt whatever at maturation, and the patients all died of intercurrent diseases, without the constitutional symptoms of carcinoma.

A little consideration will, I think, enable us to determine an identity in the nature of the external and internal affection. There can be little doubt, that the one was developed in the cellular surface of the cutis, and the other generally in that of the peri-

toneum. The tumours in both localities, as respects their forms, the variable colours of their surfaces, their modes of growth, with their tendency to become mammillated, their consistency, semi-transparency, and the distribution of their vessels, perfectly correspond. The only circumstances in which they appear to differ, are the comparatively unimportant ones, that the scalp tumours present but very obscurely any trace of fibrous texture in their interior, that they have none of the yellow and green tints observed in the abdominal tumours, and that they are all of limited dimensions.

The present case, that recorded by Jacobovicz, and probably that of Lucas, described by Alibert, furnish additional examples of the transmission of a remarkable cutaneous affection, (as in the celebrated porcupine family,) through several generations. The latter disease was propagated in the male line. So far as the histories of the former cases extend, they were transmitted only in the female line. The interest of the facts is greatly increased by the resemblance which the abdominal affection bears, on the one hand, to the cutaneous affection, and on the other hand to abnormal growths, which occur unaccompanied with any disease of the skin. Upon the whole, then, it would appear, that there exists a diathesis or state of constitution subject to an aberration of the nutrition of various parts, or a particular tissue, and that the local aberration as well as the diathesis are deficient in some of the characteristics of cancer, although, from the simili-

tude in anatomical structure of the diseased tissue to true scirrhus, attended with symptoms of cancerous cachexia, we can but suspect that, owing to causes superadded, these growths are liable to become carcinomatous and destructive.

Explanation of the Plates.

PLATE V.

Representation of the appearance presented by Frances Messenger, whose case is described at page 227..

- a*—The vascular tumours, somewhat resembling tomatoes.
- b*—A tumour whose outline has been modified in its development by the pressure of a cicatrix.
- c*—The pale dermoid tubercles.

PLATE VI.

Sections of the tumours attached to the liver and mesentery in the same case.

- a*—The cystiform appearance.
- b*—Lobules.
- c*—Radii.
- d*—A similar tumour from the mesentery.
- e*—Pedunculated tumours attached to the larger masses.

ACCOUNT
OF A CASE OF
IRREGULAR FORMATION OF THE HEART,
ACCOMPANIED WITH
**A SUPERNUMERARY VALVE IN THE PULMONARY
ARTERY.**
By THEOPHILUS THOMPSON, M.D.,
PHYSICIAN TO THE NORTHERN DISPENSARY.

READ JUNE 28TH, 1842.

IN December 1841, I was requested to visit, as a patient of the Northern Dispensary, A. H., an unmarried woman, aged thirty-eight. I found her sitting up, but with her head nodding, in consequence of drowsiness, with which she was oppressed, and into which, after being aroused, she almost immediately relapsed. Her complexion was livid, her lips were purple and swollen: the external jugular veins in a state of great distension, which was not removed by compressing their upper portion. The pulse was rapid and feeble; the impulse of the heart rather weak; the first sound shorter and more flapping, the second less distinct than natural. Both sounds were, however, unattended

with roughness, and there was no evidence of any obstacle to the circulation, excepting from dilatation in the heart. On account of anasarca, the patient was treated with decoction of chimaphila, and other diuretics, and subsequently with quinine, to counteract debility. Her weakness, nevertheless, progressively increased ; her legs became more and more œdematosus, and at length erysipelatous and gangrenous. She gradually sank, and died in the second week of January in the present year.

I ascertained from the friends of the patient that although never robust she had enjoyed an average share of health, until attacked with Asiatic cholera during the prevalence of that disease in this country : after which her strength was permanently impaired, and she occasionally complained of palpitation of the heart on going up stairs. Two years before death her constitution suffered additional injury from an attack of fever, which her medical attendant denominated "black fever." From this time she exhibited a livid complexion, and a peculiar drowsy, apathetic appearance, which induced visitors to suppose her idiotic.

The principal morbid appearances observed on inspecting the body after death, were some effusion into the peritoneum, pleura, and pericardium, and serous infiltration with redness of the bronchial tubes ; but the circumstance of especial interest was the remarkable formation of the heart. This organ was larger than natural, and exhibited a circumscribed dilatation at the part of the right ventricle.

more immediately connected with the pulmonary artery. On making an incision from that artery along the anterior part of the ventricle, four pulmonary valves were observed, but the tricuspid valve was not visible. A second incision parallel to the first was then made at the back part of the ventricle, by which means the tricuspid valve was discovered, separating the right auricle from a cavity corresponding in size and appearance to the right ventricle in its natural condition, excepting that the valves of the pulmonary artery were not seen. It was now obvious that the two cavities just described constituted the right ventricle, which was divided into two portions by an imperfect septum. This septum was composed, not of a uniform fleshy wall, but of decussating and hypertrophied columnæ carneæ; some of which separating from each other near the base of the ventricle, left an aperture of communication about an inch long, and half an inch broad. Nearer the apex there were other small interstices amongst the columns, through which, although by a tortuous and difficult course, a small quantity of blood might probably have passed from one cavity to the other. The arterial chamber of the right ventricle was rather less spacious than that adjoining the auricle; the connecting orifice was partially covered by one of the divisions of the tricuspid valve.

The walls of the left auricle, and of both the ventricles, were of natural thickness; but the right auricle was twice as thick as the left, and with very large and prominent musculi pectinati. The co-

lumnae carneæ of the left ventricle appeared singularly small when compared with those of the right. The four valves of the pulmonary artery were found on admeasurement equal in size. Each of the valves was well developed, furnished with a corpus seso-moideum, and about nine-tenths of an inch in diameter. As each of the valves was of natural size, an additional valve was rendered necessary by the preternatural magnitude of the pulmonary artery, the circumference of which exceeded that of the aorta by nearly an inch.

The divided valve, and that adjoining, rest on a fleshy column, nearly an inch in thickness.

It may be well to add, in reference to the chamber of the right ventricle contiguous to the auricle, that the portion of the tricuspid valve, near the coronary vein, is attached by tendinous cords, an inch long, to hypertrophied columns, forming the inner side of the aperture connecting the ventricular chambers. The other portion of this segment, and the adjoining segment through which the incision was made, possess tendinous cords only half as long, and attached to columns of average size. The intermediate portion of the tricuspid valve has cords of intermediate length, all of which are attached to one projecting thickened column, excepting that from the edge of the valve, covering the connecting isthmus, a few cords pass to the inner side of the ring, within half an inch of one of the semilunar valves.

Observations.—Irregularities in the number of the semilunar valves of the pulmonary artery, even

more than other deviations on this side of the heart, are confessedly rare. Amongst his very numerous dissections, Meckel met with only one example* of increased number of these valves, and, in the few cases which I find recorded, the irregularity of number was associated with great inequality of size. In the case which occurred to Morgagni,† one of the valves was much larger than the rest. In other instances, as in that related by Petsche,‡ one has been found singularly small, or, as in the example described by Bizot,§ even rudimentary. In reference to this coincidence in the recorded cases, Meckel observes,|| " *Omnes in eo convenient valvulas numero imminutas mole augeri, numero auctas mole minui.*"

The specimen now presented to the Society furnishes an exception to this rule, since its peculiarity, as respects the valvular arrangement, may be considered to consist in the addition of one perfect valve; whilst the partial division of the right ventricle into two cavities, affords another interesting deviation from the natural development of the organ.

The supernumerary valve was obviously congenital, and the peculiarities of the right ventricle, although possibly increased by circumstances ren-

* *Tabulae Anatom.*

† *De Sed. et Causis Morb. Epist. 34, s. 15.*

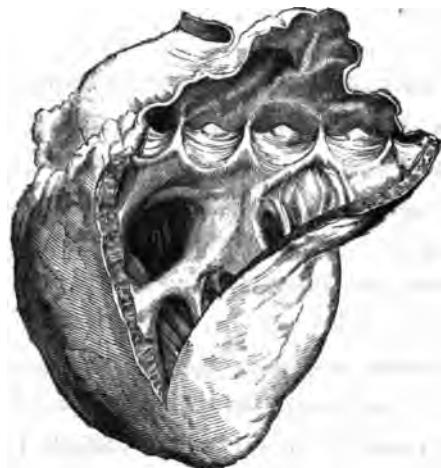
‡ *Haller, Collect. Anatom. Dis. vol. vi. p. 774.*

§ *Mém. de la Société d'Observation, vol. i.*

|| *De Cordis Condit. Abnorm. p. 31.*

dering inordinate efforts of the heart essential to the maintenance of the circulation, had likewise, in all probability, existed from birth.

Under favourable conditions, these deviations from the usual structure might have been consistent with health, but when the muscular energy was impaired by disease, the heart suffered embarrassment, in consequence of the indirect course of the blood through its right cavities; and when the supervention of bronchial affection interrupted the circulation of blood through the lungs, a livid complexion, oedema, and gradual exhaustion of strength, were the natural results.



The preparation from which the drawing was made is in the Museum of the Royal College of Surgeons.

NOTES
OF
A CASE OF
PETECHIAL COW-POX,

WITH OBSERVATIONS ON THE DEVELOPMENT OF THE
HÆMORRHAGIC DIATHESIS.

By GEORGE GREGORY, M.D.,
PHYSICIAN OF THE SMALL-POX AND VACCINATION HOSPITAL.

READ JUNE 14TH, 1842.

THE occurrence of petechiæ and hæmorrhages, as a symptom in certain of the febrile exanthemata, especially the small-pox taken naturally, has been known to physicians from the earliest periods ; and occasionally, though very rarely, the same phenomenon has been observed when the small-pox has been excited artificially by inoculation. But so far as my reading extends, no instance has yet been recorded of the same condition of the fluids being excited by the insertion of the vaccine virus. The following case, therefore, appears worthy of being submitted to the notice of the Society.

On Thursday, May 19, 1842, Mary Ann Webb, aged four years, a fine child, residing with its parents, at No. 8, Euston Mews, Euston Square,

was vaccinated at the Small-Pox Hospital, by Mr. Marson, in five places on the left arm. The child was at the time apparently in perfect health. Her brother James, aged six, and her sister Jane, aged one year and a half, were vaccinated at the same time. The lymph for all the three children was supplied from the same source, an unexceptionable eighth-day vesicle.

On Sunday, May 23rd, the mother first perceived that the arm of the child Mary Ann presented some unusual characters. It appeared to her more inflamed than the arms of the other children, and she noticed at the same time some spots on the child's face. The child, however, made no complaints, and in all other respects enjoyed its usual state of health. On Thursday, May 6th, being the eighth day, the child walked to the hospital and back without feeling fatigued. The vesicles on that day appeared dark, as if filled with blood; the areola was of a mahogany colour, obviously from ecchymosis; and numerous petechiæ were dispersed over the whole body, more especially the face, neck, and arms. There were several patches of ecchymosis on the tibia. The child's appetite and sleep were unimpaired.

On the following day, Friday, the 27th May, I first saw the child. The outer portions of a large areolous circle had assumed a yellowish tint, while the inner portions were still of a dark mahogany colour. The vesicles themselves were jet black. It was obvious that there had been extensive ecchymo-

sis around the incisions, which was in process of absorption. The petechiæ over the body were numerous. On the left temple there was a very large extravasation of blood, owing to a slight bruise which the child had received. There had been some bleeding from the left ear, and a few drops of blood had escaped from the nostril. The child's general health was good. The bowels had acted freely from medicine taken the preceding day. No blood was perceptible in the motions.

The brother and sister of the child were passing through the cow-pox in a perfectly normal manner.

Dr. A. Todd Thomson, Dr. Quain, Mr. Davis of Hampstead, Mr. Porter, and other gentlemen, visited the child on this and the three succeeding days. The ecchymosed state of the arm, and the petechiæ, declined with the decline of the cow-pock. On Friday, June 3rd, (the sixteenth day of vaccination,) all hæmorrhagic appearances had ceased. Two scabs had fallen off, leaving good cicatrices. Three others, hard, and of a jet black colour, still adhered. The child was in perfect health.

On inquiry into the history of the child, I learned that it had cut some of its teeth with fits. In other respects the child had exhibited no symptom of constitutional weakness. It had not passed through either measles or scarlet fever, and had never suffered from any serious disease.

There cannot, I apprehend, be any doubt that the hæmorrhagic diathesis had, in this case, been developed by the agency of the morbid poison inserted

into the arm. The previous health of the child, the appearance of the petechiæ on the fourth day of the vaccination, and their decline on the sixteenth, forbid the assumption that there was here an accidental coincidence of cow-pox in a previously unhealthy condition of the fluids. This direct effect of the vaccine poison upon the blood may teach us to judge of the influence exerted by cow-pox under ordinary circumstances upon the circulating mass. It affords a key to explain the more recondite phenomenon of anti-variolous power.

Of all the sources of the hæmorrhagic diathesis, by far the most common is the action of a morbid poison. There is scarcely a morbid poison known which has not developed it. Small-pox, scarlatina, the typhoid miasm, the pestilential miasm, the miasm of yellow fever, the bite of the rattle-snake, are all occasionally, though in variable degrees of frequency, accompanied with petechiæ and hæmorrhages. It is even probable, that many cases described as idiopathic purpura, are, in reality, the offspring of a morbid poison. Some years ago, a policeman was admitted into the Fever Hospital with petechial fever, supposed to be idiopathic, and died the following day. Ten days afterwards a second policeman from the same division was received into the Small-pox Hospital with petechial small-pox, and died at a very early period of the eruption. The two men had been in communication, and little doubt can be entertained that both were suffering under the effects of the variolous poison,

undeveloped in the one case, and partially developed in the other.

The extent to which a morbid poison, in its highest state of intensity, can deteriorate and impart this singular hæmorrhagic disposition to the blood, is quite wonderful. On the 22nd February, of this year, I was requested by Dr. Leonard Stewart to see, in consultation with him, a lady, thirty-two years of age, vaccinated in early life, who was then labouring under petechial small-pox. She died the same evening. Her whole body was of the colour of indigo, and my first impression on seeing her was, that she was a native of Africa. In this most remarkable case, the mental faculties were quite unaffected. Within a few hours of her death, she conversed with the utmost composure. A like freedom of the brain and nervous system occurred in the case of petechial cow-pox now under consideration, and it is, I believe, a common attendant on the hæmorrhagic diathesis. It would appear therefore, that this singular condition of the blood is attributable, in a great measure, if not altogether, to the direct agency of the poison on the mass of circulating fluids, and is independent of the brain and nervous system.

It may reasonably be presumed, that if, in the instance before us, the child had been inoculated, or had taken the small-pox casually, in either case the hæmorrhagic diathesis would have been developed, and life brought into imminent hazard. It is exceedingly rare to witness recovery from the com-

plication of small-pox, in the unprotected, with the petechial tendency, and generally when small-pox invades the vaccinated, the petechial form proves fatal. Nevertheless, I have seen two or three cases of recovery under such circumstances. The mitigated form which the haemorrhagic diathesis assumed in the vaccinated case, the subject of the present paper, may perhaps have been owing to the mode in which the generating poison gained access to the system. I know no reason why the cutaneous mode of reception should not mitigate this as it does the other better-known effects of a morbid poison.

It will be very interesting to ascertain if this child, when hereafter attacked by measles or scarlet-fever, should be thrown into the haemorrhagic state, or whether it be the vaccine poison alone which has this peculiar effect upon the child's blood. I have requested the mother to communicate with me in the event of the child's being so affected. Considering the normal cause of the other vaccine phenomena, I presume that the vaccination has been *effective* in this case, and that the occurrence of small-pox need not be dreaded. It will yet be highly interesting to follow out the history of the child, and to ascertain, should it ever imbibe the variolous poison, in what form and under what modifications the disease develops itself.

It may not, perhaps, be irrelevant to notice the important distinction that subsists between cases of petechial small-pox and those wherein the vesicles generally or partially fill with blood from the vio-

lence of the local inflammatory action. The latter I have frequently witnessed, but the former are very rare: of the many thousand children whom I have seen under vaccination, the present is the only instance I have seen of true petechial cow-pox. That similar cases however have occurred to others I cannot doubt. Mr. Gardner, of Great Portland-street, a very intelligent practitioner, saw a case of this kind some years ago in Westminster. In the Museum of Guy's Hospital, there is a wax model, (No. 2,705,) described as "The arm of a young man affected with purpura, consequent to vaccination." I have examined this preparation, and find it to be altogether different from the case now described. The eruption is of an anomalous character, in large circular patches, and the vaccine vesicles are not filled with blood. I would rather characterize this as a case of "adult vaccination performed in a very unhealthy state of the system."

It only remains for me to state, that a drawing of the appearances on the arm, on the ninth day of vaccination, was taken, under the direction of Dr. A. Todd Thomson.

ON
ACUTE ULCERATION
OF
THE DUODENUM,
IN CASES OF BURN.

BY T. B. CURLING,

LECTURER ON SURGERY AND ASSISTANT SURGEON, LONDON HOSPITAL, ETC.

READ JUNE 28TH, 1842.

In no part of the alimentary canal are the diseases to which it is liable, so obscure, both in their origin and diagnosis, as in the duodenum; and as the following cases of ulceration of this portion of the small intestines in connection with burns, may be interesting, as tending to throw some light on its pathology, and to awaken attention to a source of danger in these accidents not generally suspected, I have much pleasure in complying with the wishes of the President in submitting them to the consideration of this Society.

CASE I.

Extensive burn.—Ulceration of the Duodenum.—Fatal hematemesis.

M. A. Fox, a girl aged 11, was brought to the London Hospital May 9th, 1841, on account of a

severe burn on the chest and both arms, the skin of which was extensively destroyed. She had apparently been going on tolerably well until the 27th instant, when I was summoned to the case in consequence of the occurrence of profuse haematemesis. She afterwards repeatedly ejected blood from the mouth, and also passed some by stool, and notwithstanding the remedies employed, expired in fifteen hours after first vomiting blood.

The body was examined on the following day. The surface was pale and exsanguineous. The heart and lungs were healthy, but nearly devoid of blood. The stomach was sound, and contained a quantity of dark grumous blood. In the duodenum, at the distance of an inch from the pylorus, there was a circular ulcer about half an inch in diameter, and its edges slightly elevated, which had extended through all the coats of the intestine, the bottom of the ulcer being formed by the glandular substance of the pancreas, which was closely united to the duodenum at that part. The open mouth of a considerable-sized vessel could be distinctly seen at the base of the ulcer, apparently on the surface of the pancreas. There was no further disease of the intestinal canal, but it contained a good deal of dark-coloured blood mixed with the faeces. On subsequently making inquiry of the parents, I could find no reason to suspect the existence of disease in the duodenum previously to the occurrence of the burn.

CASE II.

Extensive burn.—Perforating ulcer of the Duodenum.—Death from hemorrhage.

A fine male child, aged 4 years, was admitted into the London Hospital, Sept. 11th, 1840, under the care of Mr. Luke, having sustained an extensive burn on the neck, chest, and both arms. The case was treated in the usual way, but on the 24th, about 11 A.M., after complaining of heat and pain in the abdomen, he vomited about half a pint of blood, and afterwards continued to pass blood by stool at different periods till his death, which occurred on the following day, in the evening, after a convulsive fit. The bowels were not relaxed previously to the haemorrhage.

I examined the body the day after death. The surface and internal organs were unusually pale. The heart and lungs were healthy. The stomach was sound, and filled with undigested food mixed with dark-coloured blood. The intestines contained a quantity of black blood, like pitch, mixed with feculent matter and mucus. A large solitary ulcer was found at the posterior part of the duodenum where it passes in front of the head of the pancreas. This ulcer was of an irregular form, and three quarters of an inch in diameter at its broadest part. It had destroyed the whole of the coats of the gut, so that its base was formed by the pancreas. So slight was the connection of the margin of the ulcer to this gland, that in disturbing the parts in their

removal, the border of the ulcer gave way, and allowed the escape of a portion of the contents of the duodenum into the cavity of the abdomen. The edges of the ulcer were smooth and elevated. A large blood-vessel was distinctly seen running across the base of the ulcer in a transverse direction. The anterior part of the parietes of this vessel was destroyed, so that the remains presented merely a groove or channel, which terminated near the edges of the ulcer, at the opposite sides, in open mouths, into which bristles are introduced in the preparation. The rest of the intestinal canal was carefully examined, but without any further disease being detected. The follicles however throughout were well developed.

CASE III.

Burn.—Fatal.—Perforating ulcer in the Duodenum.

A girl, aged 8 years, was admitted into the London Hospital, under the care of Mr. Scott, April 14th, 1842, having met with a severe burn on the face, chest, abdomen and both arms, the cutis being destroyed. She died on the 24th, having passed blood by stool shortly before death. The nurse stated that she had not vomited whilst in the hospital, and that she sank somewhat rapidly at last.

I did not see the child during life, but I made an examination of the abdomen the day after death. The stomach was healthy, and its mucous membrane rather pale. In disturbing the parts to remove the duodenum, a portion of the contents of the bowel

escaped. A large excavated ulcer was found in the duodenum, the coats of the intestine being entirely destroyed, so that the base of the ulcer was formed by the pancreas. It was about an inch in length, and three quarters of an inch broad, and it reached to within a quarter of an inch of the pylorus. The arteria pancreatică duodenalis was distinctly seen crossing the bottom of the ulcer, its cavity being exposed, and a minute black dot at one extremity indicated the existence of a clot in the vessel. About two thirds of the edge of the ulcer were thickened and rounded, the remainder being even and bevelled off, as if undergoing the process of healing. The connection of the margin of the ulcer to the pancreas was extremely slight, and formed only by the peritoneum, in which there was a rent, occasioned in the removal of the parts. The follicles in the lower portion of the duodenum were a little enlarged, but there was no unusual vascularity or trace of disease in any other part of the intestinal canal, which was carefully examined throughout. The contents of the duodenum were natural in appearance, but the intestines beyond, contained a quantity of dark blood, resembling pitch.

CASE IV.

Burn.—Fatal.—Ulceration in the Duodenum.

A boy aged $3\frac{1}{2}$ years was admitted into the London Hospital in September 1840, severely burnt on the face, both thighs, and scrotum, the cutis being destroyed. The accident occurred in consequence of

his clothes catching fire. He lingered till the eleventh day afterwards, when he died. I did not see the boy during life. On inquiry of the nurses in the ward, it was ascertained that the bowels had not been relaxed before death. The friends not having consented to an examination of the body, the stomach and duodenum were the only parts inspected. The former was in every respect healthy. A small solitary ulcer was observed in the mucous membrane of the latter. The ulcer was situated rather further than an inch from the pylorus, at that part of the duodenum where it is in contact with the head of the pancreas. The ulcer was of an oval form, five lines in length and one and a half in breadth at the widest part ; its long diameter was in the transverse direction. It was situated between two folds of the mucous membrane, so as at first sight to appear to be merely the depression between them. It was evident, however, on a closer examination, that there was a breach of surface in the mucous membrane. The edges of the ulcer were even. There was no particular vascularity around it, nor any unusual development of the follicles.

I am indebted to Mr. Stanley for the following particulars of a preparation contained in the Pathological collection at St. Bartholomew's Hospital.

CASE V.

Ser. 13th, 55. *Duodenum with part of the stomach.* Two large ulcers, and many of smaller size, have formed in the mucous membrane of the duo-

denum. The two large ulcers have completely penetrated the coats of the intestine. One of these ulcers is closed by the contiguous and adherent surface of the pancreas. The former communicated with the cavity of the abdomen.

From a child about 10 years of age. The child from whom this preparation was taken was brought into the hospital in consequence of a burn, and about a fortnight afterwards, while her case appeared to be proceeding favourably, she was seized with extreme pain in the abdomen, vomiting, and great depression. She was thus attacked in the evening, and expired on the following morning. There had been no symptoms whatever which indicated any previous intestinal affection.

Mr. Henry Lee has favoured me with the following brief particulars of a case which occurred at St. George's Hospital.

CASE VI.

Severe burn.—Ulcer in the Duodenum.

Sarah Twigg, aged 19 years, died on the 19th of April 1842, ten days after a burn, which extended over the nates, thighs, and shoulders.

The duodenum contained a large clot of blood, six inches in length, which had moulded itself to the form of the bowel. In the descending portion of the duodenum was a circular ulcer, the size of a bean, extending through all the coats of the intestine. A portion of peritoneum closed the aperture externally, leaving a valvular opening,

communicating with the cavity of the peritoneum.*

The following cases are related by Mr. Samuel Cooper, in a Clinical Lecture on the Pathology of Burns and Scalds, delivered at University College Hospital.†

CASE VII.

Scald of the Chest, followed by Ulceration of the Duodenum.

Hannah Latter, aged 8 years, was admitted December 18, 1838. About five weeks prior to this date, she met with the accident, for which she was attended by a private practitioner, who covered the injured parts with flour. The case went on promisingly for three weeks, at the end of which she began to void a great deal of blood from the rectum. At the time of her admission she was in a most reduced and emaciated condition, and died on the 20th.

Post-mortem appearances.—Abdomen: an ulcer, of about the size of a shilling, in the duodenum, just beyond the pylorus; the deficiency in the parietes of the bowel being supplied by the subjacent portion of the pancreas. Blood was found in various places within the small intestines.

* Mr. Lee has a distinct recollection of another case of ulcer in this part of the duodenum after death, by burn, but he preserved no notes of the case.

† London Medical Gazette, vol. xxiii. p. 837.

CASE VIII.

Burns on the Abdomen, Chest, Arms and Occiput, followed by Ulceration of the Duodenum, and Vomiting of Blood, &c.

Mary Wright, aged 3 years, was admitted into University College Hospital, with several burns of the above-mentioned parts. As she was somewhat collapsed, warm stimulants were given, and the burns dressed with flour. The next day vomiting came on, and for four days the child voided from the stomach considerable quantities of a dark brown fluid, and complained of severe pain in the epigastrium. On the following day she vomited up blood, and, on the next, died convulsed.

Sectio cadaveris.—Traces of peritoneal inflammation on some of the intestines. On raising the stomach, a large clot of blood was observed between it and the mesocolon, circumscribed by adhesion of the adjacent peritoneal surfaces. On breaking the adhesions, and separating the coagulum from the duodenum, the contents of this bowel became effused through an ulcerated aperture, of about the size of a halfpenny, which was situated in the posterior part of the intestine, close to the pyloric orifice of the stomach. A quantity of coagulated blood was found in the latter viscus, and also in the duodenum and ileum; and besides the ulcerated opening, there were three additional ulcers in the duodenum.

The two following cases, which occurred in the Liverpool Infirmary, are recorded by Mr. Long, in an interesting paper on the *post-mortem* appear-

ances found after burns, published in the London Medical Gazette.*

CASE IX.

Ann Jones, aged 28 years, was admitted into the infirmary on the 2nd of April 1834, with an extensive and deep burn of the arms, chest, and nates. She stated that she was in perfect health previously to the accident. She vomited more or less every day, sometimes excessively ; had considerable pain on pressure in the epigastric region, with a red glassy tongue, and intense thirst ; bowels constipated, but relieved by enemata ; the pulse, for some days, was small and weak, then full and strong ; died on the eighth day after the accident.

Post-mortem examination.—No peritoneal inflammation, stomach contracted, mucous membrane white, firm ; not a vessel to be seen upon it ; pylorus healthy ; at the superior angle of the duodenum a perforation or ulceration existed, of the size of a shilling ; the margins of the perforation were adherent to the gall-bladder, but the slightest traction separated them ; the surface of the gall-bladder filling up the area of the perforation, soft, and as it were eroded, the softened surface being easily scraped off ; the edges of the perforation and the corresponding surface of the gall-bladder were of a black colour ; two or three ulcers of the size of a

* Vol. xxv. p. 743. Mr. Long quotes another similar case, published by Mr. Liston, but this is evidently the same case as the second of the two recorded by Mr. S. Cooper.

pea, and with dark edges, were also found in the duodenum, and the remainder of the intestinal mucous membrane quite healthy, excepting two small red patches in the sigmoid flexure of the colon, which corresponded to two masses of hardened fæces.

CASE X.

Helena Birch, æt. 14, admitted May 24, 1834, with a burn of the second degree, of the nates, posterior part of the neck and both arms; she was in perfect health prior to the accident. She complained of nothing except pain in the burned parts, until the tenth day after the accident. At this period pain in the epigastric region commenced; at the same time the hypogastric region became the seat of pain; the tongue was but slightly altered; she had no vomiting, and the pulse was small and quick. On the 11th the symptoms were more severe; on the morning of the 12th the pain in the epigastric region became intense: very shortly afterwards she was seized with vomiting and profuse diarrhoea, sudden distension of the abdomen, prostration of strength, and in eleven hours she died. There was no doubt but that perforation had taken place in some part of the gastro-intestinal tube. She always lay upon the abdomen.

Post-mortem examination.—Peritoneal lining of abdominal muscles, and its reflections over the liver, uterus and intestines, coated with custard-like coagulated lymph; the omentum was in a similar

state, and about two pints of whey-like fluid floating in the cavity of the abdomen ; the peritoneal coat of the intestines intensely red ; the mucous lining of the stomach, jejunum and ileum, quite healthy ; a few red patches in the colon ; the duodenum, at its superior angle, presented a perforation the size of a shilling. The state of the duodenum and of the perforation in this case, differed from the preceding one only in the following particulars : the perforation was rather nearer to the pylorus, its margins were not black, it did not adhere to the gall-bladder, and there were no ulcerations.

I have here adduced four cases of ulceration of the duodenum occurring in cases of burn, which have come under my own observation, two others furnished me by friends, and four previously recorded, making in all ten, which considering the rarity of ulceration in this part of the tube, and the absence of any previous symptoms of intestinal affection, appear to me sufficient to indicate the existence of a connection between the injury to the skin and the disease in the duodenum.

The circumstance of congestion in the mucous membrane of the alimentary canal in common with a similar condition of the blood-vessels in the brain and lungs, occurring in the early stage of burns, and of the stomach and intestines being subject to inflammation after recovery from the immediate effects of the injury, were first particularly noticed by Dupuytren,* but it does not appear that any

* "Si les sujets, après avoir résisté à la première impression du

suspicion was excited that the duodenum was the part most liable to suffer.

The subjects of the disease were young, the eldest having been 28 years of age, whilst the ages of the other nine varied from 3 years to 19. The ulcerative action was evidently of an acute character, a fatal termination having ensued in from seven to seventeen days after the injury in all the cases except one, in which the patient survived till the end of five weeks. Its highly dangerous nature is evinced by the circumstance that death was occasioned in three cases by the ulceration going on to perforation, and thus causing peritonitis, and in six by hæmorrhage consequent on the lesion of a blood-vessel. The ulceration usually taking place in that particular part of the duodenum where it passes in front of the head of the pancreas, renders these cases very prone to the occurrence of serious hæmorrhage,

feu, succombent du troisième au huitième jour, à la seconde période, à la violence de la réaction inflammatoire, après avoir présenté pendant la vie tous les phénomènes d'une vive irritation des viscères, on trouve à l'ouverture des cadavres, tous les signes de la gastro-entérite la mieux caractérisée, et ordinairement accompagnée d'alterations inflammatoires de l'encéphale et des poumons . . . Enfin si le sujet n'a succombé qu'à une époque beaucoup plus éloignée, pendant le cours de la période de suppuration et d'épuisement, on trouve dans les viscères, et surtout dans le canal digestif, des altérations profondes qui attestent la longue inflammation dont ils ont été affectés ; la muqueuse est parsemée de plaques d'un rouge plus ou moins vif, ou plus ou moins foncé, d'ulcérations plus ou moins profondes ; les ganglions mésentériques sont généralement engorgés, &c."—*Leçons Orales*, t. i. p. 217. Brussels edition.

owing to the arteria pancreatico-duodenalis running so close to the walls of the intestine in its passage between the duodenum and pancreas, as almost necessarily to become exposed, when perforation ensues. In order to trace out the progress of the disease, I examined the alimentary canal in several cases of burn, fatal at various periods after the accident, and it was thus that I met with the ulcer in the early stage described in the fourth case. In the case of a child aged 2 years, who was admitted into the London Hospital December 2nd, severely burnt on the arms and chest, and died on the 28th, I found considerable injection of the mucous membrane of the duodenum, near the pancreas, occupying a space of about an inch in diameter, the parts around being pale. There was also similar injection of the mucous membrane at the termination of the ileum. In the following case there were more unequivocal marks of inflammatory disease.

CASE XI.

Burn.—Fatal.—Inflammation of the Duodenum.

A male child, aged 4½ years, was admitted into the London Hospital December 29th, severely burnt on the face, chest, and left arm, the cutis being destroyed. The accident happened by his clothes catching fire. He survived the injury only three days. The body was examined on the third day after death, the weather at the time being frosty. The vessels of the brain were turgid, but the lungs were not particularly congested. The mucous mem-

brane of the stomach was natural in appearance. On opening the duodenum, I detected in the mucous membrane a spot of deep diffused redness, about three quarters of an inch in diameter, situated just anterior to the head of the pancreas, and its outer margin half an inch distant from the orifice of the pancreatic and biliary ducts. On the outside of the intestine there were several lymphatic glands, much enlarged and highly injected, no doubt the result of the irritation within. There was also an enlarged gland on the gall-bladder. The mucous membrane of the remainder of the intestinal canal was examined, but nothing remarkable was observable. There was no injection of the mucous membrane, and no enlargement of the follicles or disease of the mesenteric glands.

Mr. Page, Surgeon of the Carlisle Infirmary, who during eighteen months made the *post-mortem* examinations at the London Hospital, and at my request directed his attention to the subject of these inquiries, met with the following cases :—

A girl aged 13 was admitted, with a severe burn on the back, legs, and arms, the skin being extensively destroyed. She died two days afterwards. The body was examined twenty hours after death. The mucous membrane of the duodenum was much congested, more especially that part which passes in front of the pancreas, where there was an irregularly circular spot of a highly florid colour, but no destruction of substance was observed.

Martha Young, aged 7, admitted February 3rd,

with a severe burn on the head, face and abdomen, and died on the 14th. The posterior portion of the duodenum which passes before the pancreas was rather more vascular than usual. The intestinal canal was otherwise healthily.

In two other cases of burn, one, a young woman, aged eighteen, who expired at the end of eleven days, the other, a girl aged seven, who died from the effects of double pleurisy, after thirty-three days, Mr. Page observed nothing remarkable in the duodenum.

In the preceding observations, the origin of the mischief in the intestine may be traced from the period of the injury to the skin, and referred to acute inflammation, ending in ulceration of a defined portion of the mucous membrane of the duodenum proceeding rapidly to perforation, exposing the pancreas, and sometimes laying open the branches of the hepatic artery passing between this gland and the intestine, and sometimes opening a communication with the serous cavity of the abdomen, producing peritonitis, and thus causing death. It has been noticed by authors, that in cases of extensive burn, patients often appear to be going on well, the constitution seeming to bear up against its destructive effects, when the powers suddenly give way, and the patient rapidly sinks. In many of these cases, if inquiry had been made, it would very probably have been found that the unfavourable change had resulted from the occurrence of haemorrhage or perforation from an ulcer in the duo-

denum. Indeed, in two cases which have come under my notice, the surgeon in attendance was quite unaware of there being any bleeding from the bowels, the nurse having neglected to inform him of the alteration in the appearance of the stools.

It would be interesting to inquire how it happens that in cases of burn, the first portion of the duodenum is peculiarly the seat of inflammation and ulceration in preference to other parts of the intestinal tube. It cannot be attributed solely to the congestion of the mucous membrane, which commonly occurs after a severe burn, inasmuch as the remainder of the alimentary canal, though equally participating in the vascular disturbance, very rarely indeed becomes affected with ulceration. May it not be an effect of the sudden arrest of the important functions of a large part of the skin, not only of that actually injured or destroyed by the fire, but also of the parts which usually become afterwards inflamed to some extent around the seat of injury? The duodenum is furnished with peculiar glands, the true glands of Brunner, which abound in that particular part of the intestine, the seat of disease, and though their office and the nature and uses of their secretion have not been well ascertained, their size and number indicate that they must be capable of pouring out a large quantity of fluid, and that their functions in the œconomy are by no means unimportant. Now it is seldom that the secretions of any organ can be suddenly stopped without injurious consequences resulting, and con-

sidering the importance of those of the skin, and the continuity of this structure with the mucous surface of the alimentary canal, we can scarcely be surprised that the duodenal glands should sympathise and endeavour, by an increased action, to compensate for the suppression of the exhalation from the skin, and that the irritation consequent thereon should often lead to inflammation and ulceration. The period too at which the disease is set up, commencing as it does so soon after the occurrence of the injury, and, if not fatal, ceasing, as I shall presently show, when the functions of the skin are restored, or a drain is established during the necessary work of repair,—all these circumstances seem to indicate that the origin of the mischief must be referred to some sympathetic cause, such as I have described. And if this supposition should prove correct, the excavated and perforating character of the ulcer* would be explained by the disease commencing in glands seated beneath the mucous membrane. Since I was led to suspect that the glands of the duodenum were the original seat of diseased action, I have not had sufficient opportunities of investigating this interesting point

* I have seen ulcers of this form in the same part of the intestine in other cases besides burns. Some specimens of the kind may be seen in the museum of Guy's Hospital. The peculiar characters of the duodenal ulcer are also well described by Dr. Hodgkin in his published lectures on the Morbid Anatomy of the Mucous Membranes. For the hint that the glands of Brunner are the probable seat of ulceration in these cases, I am indebted to my friend Mr. Bowman, of King's College.

by dissection, in cases where death has ensued within a few days after the injury. In the following case these glands appear to have been the seat of irritation.

CASE XII.

Severe burn.—Inflammation of the Duodenum.

A girl, aged 13, was admitted into the London Hospital, under Mr. Luke, May 13th, 1842, severely burnt on the face, abdomen, arms and knees, and died on the 16th, at 7 P. M. She vomited on the 15th, afterwards refused all nourishment, and was insensible for thirty hours before death.

The abdomen was the only part examined. The stomach was quite sound and rather pale. The mucous membrane of the first part of the duodenum presented an uniform bright red appearance, which terminated abruptly at the pylorus, but was gradually shaded off in the membrane, a little beyond the part where the duct of the liver and pancreas open into the intestine. Brunner's glands were carefully dissected, and found very distinct and large, and numerous vessels were interspersed amongst them. There were some enlarged lymphatic glands in the vicinity of the duodenum externally. The remainder of the intestinal canal was carefully examined, but nothing peculiar was remarked, and the glandulæ solitariæ and agminatæ were not usually developed. The mesenteric glands were slightly enlarged.

Dr. Hodgkin seems to think that vomiting may be a sufficient cause of ulceration in this part of the

duodenum, and expresses his belief that in some instances it has been the cause of ulceration, as much as the ulceration has been the cause of keeping up the vomiting. He refers to a well-marked case of ulceration in the first part of the duodenum, which occurred in a young woman, whose vomiting commenced on her becoming pregnant, and continued uncontrolled till about the fourth month, when she died. He observes that the vomiting in this case was evidently secondary, and not the result of original disease in the alimentary canal ; in which the ulceration alluded to was the principal morbid appearance, and even this did not appear to be of long standing.* Vomiting, it is true, often occurs for hours and even days after severe burns, and though in some of the above cases it appears to have been obstinate and distressing, in others the patients suffered very little from it, and as the part of the duodenum affected is nearly fixed, and cannot be much disturbed by the act, I am not inclined to attribute any considerable influence in the production of the disease to this cause.

The disease would commonly be indicated by pain and tenderness on pressure on the right side, midway between the cartilages of the ribs and umbilicus, by uneasy digestion, and sometimes also by vomiting, and, when ulceration ensues, by dark bloody stools. But the morbid action, though acute, is so

* Lectures on Morbid Anatomy, vol. ii. p. 271.

limited in extent and so deeply seated, that we should scarcely expect the symptoms to be well-marked, and they must often be more or less masked by the general derangement consequent on the serious injury inflicted on the skin. The treatment which I should be disposed to adopt in cases of burn, where I had good reason to suspect that inflammation or ulceration was going on in the duodenum, would be the application of leeches to the skin on the corresponding part of the abdomen, if not implicated in the burn ; the exhibition, at intervals, of a few grains of the hydrargyrum cum cretâ combined with opium to allay pain ; and allowing nothing but fluid nutriment of the blandest description.

We have sufficient evidence that the ulcerative process in these cases may be arrested before producing perforation, and the breach of surface admit of being repaired. In Case III. I have mentioned that part of the edge of the ulcer was even and bevelled off as if undergoing the process of healing, and in the pathological collection at the London Hospital, there is an interesting preparation of a cicatrized ulcer in the duodenum, which was found in the body of a young woman who died exhausted from the effects of an extensive burn, eight weeks after the occurrence of the injury. The cicatrix is smooth, rather less in size than a fourpenny piece, and situated near the pylorus, extending a little over that part of the intestine in contact with the duodenum. It is extremely thin, consisting merely

of peritoneum, which exhibits internally a number of radiated lines. The preceding observations justify me in concluding that the cicatrized ulcer in this case originated in the burn, of which the patient ultimately died.

CASES OF
MALFORMATION OF THE HEART.

By T. B. E. FLETCHER, M.D.,

PHYSICIAN TO THE GENERAL DISPENSARY, BIRMINGHAM.

COMMUNICATED BY RICHARD PARTRIDGE, Esq., F.R.S., &c.

READ MAY 24TH, 1842.

IN the belief that the following cases of malformation of the heart are of sufficient importance to attract the notice of the Fellows of the Royal Medical and Chirurgical Society, I beg leave to bring them, together with preparations and drawings of the abnormal parts, before the meeting.

The first is a case of aneurism and dilatation of the pulmonary artery, together with malformation of the heart and arteries, of which I shall proceed to give, first, a sketch of the case, then a description of the parts as they appeared at the *post-mortem* examination of the body, and, as opportunity offers, venture upon a few remarks, which, I think, may be useful in assisting others, who may meet with similar cases, in arriving at a correct diagnosis of the disease.

On the 24th of August 1839, Mary Bunn, aged 19 years, a worker in a screw manufactory, of very spare habit, and exsanguinous appearance, presented herself to me as a patient at the Birmingham

General Dispensary. She stated that up to the age of sixteen she enjoyed tolerably good health, except that she had always a slight hacking cough, from which she never suffered particularly, and that previously to that time she had not noticed any remarkable difficulty of breathing: that, at that age, she was attacked by pains in the chest, cough, and difficulty of breathing, which symptoms have reappeared since, at different times, and rendered her quite unfit for work, for weeks together. About eight months since, she was attacked in the way just described, with greater severity than formerly; and about four months ago, still more severely; the cough and difficulty of breathing having been extreme, and much increased by slight exertion, and the expectorated matter or mucus frequently tinged with blood. She had also violent pains in the chest, back and shoulders, and particularly in the right hypochondrium, which continued until the following day, when she was bled in the arm to the amount of sixteen ounces, with much relief. Two days afterwards, she had seventeen leeches applied to the epigastrium, and took aperient medicines; about a week after which she had a blister applied to the right hypochondrium, and in about a fortnight afterwards she returned to her work, at which she continued until about a fortnight since, when, on taking cold, she was again disabled by the return of the difficulty of breathing, accompanied with pains in the left hypochondrium. She

obtained a recommendation for the Dispensary, and presented herself on the above date.

The head is free from pain or any other unpleasant symptom. She complains of pains in the chest, attended with difficulty of breathing, and coughs up small quantities of blood. The pulse is small, and 130 in a minute : she has thirst, and is feverish. She has never menstruated. The mark of vaccination exists on the arm. No œdema.

Examination of the chest.—The parietes of the chest move freely in the actions of respiration. It sounds rather more dull on the left side of the sternum, where it is also rather more prominent, than on the right side, which sounds healthy on percussion.

On the left side of the sternum, between the second and third ribs, there is a very superficial pulsation, with purring tremor, and a loud rasping souffle is heard close under the stethoscope. The pulsation does not extend further than the neighbouring parts of the chest, but the souffle is heard very extensively ; it is heard less distinctly as the stethoscope is applied further from the point mentioned, but in the situation of the heart the sound of it is sufficiently loud to mask the proper sounds of the organ ; it is heard all over the left side of the chest, even to near the vertebræ, and masks the respiratory sounds, except at the back part and the supra-clavicular region of the chest on the left side. On the right side, the souffle is heard

almost as extensively, but not with the same intensity: in connection with it, we have the respiratory sounds, which are heard more distinctly in the posterior part of the right side, where they are not interfered with by the rasping souffle described, the only situation of the chest in which there is no trace of it. Above the clavicles this abnormal sound almost entirely ceases abruptly, which may be considered diagnostic of this peculiar affection, as well as that it is not heard more distinctly over the courses of the large arteries of the neck than at other parts of it.

The impulse of the heart is normal, and the space of dulness, as far as can be defined, (for there is some difficulty in defining exactly the situation of the heart by percussion, on account of the dulness on the left side of the sternum already indicated,) which marks the situation of the heart in the region, is normal.

In the upper part of the right side of the chest, the voice is heard more distinctly through the stethoscope than on the left.

The functions of the stomach, kidneys, and all other viscera not previously mentioned, are healthy.

On the 26th September she was so much improved as to go to her employment, which, through the kindness of her employer, was provided for her of that kind which she was able to do in a sitting position, thus avoiding all exertion.

This kind of attack the patient was subject to on any exposure to cold, every succeeding one being

worse than the former, and the latter attacks were accompanied by inflammation of the left lung and pleura. The remedies that were employed were antimonials, digitalis, aperients, leeches, and counter-irritants.

From the above date of her recovery, September the 26th, 1839, to the commencement of the winter 1840, she had three similar illnesses.

In December 1840 she was attacked by severe inflammation of the lungs, with great difficulty of breathing, fever, and thirst ; the pulse hard, and 140 in a minute. On examination of the chest, the pulsation was found to occupy a more extensive surface than before described, the souffle much louder, and it had decidedly assumed a see-sawing character, to which it had been gradually approaching ; marking the passage of the blood from the heart, and its regurgitation in the artery : the sounds of the heart were completely masked by it. Dulness on percussion occupied the posterior and inferior portions of the chest, and extended more particularly to the left side, under the axilla, and even anteriorly, besides the dulness on the left side of the sternum, which was noticed at the first examination, and which at this time was more extended.

Crepitation was found in all those parts of the chest just mentioned as sounding dull on percussion, except that portion to the left of the sternum previously referred to, and puerile respiration was heard over the upper parts of the left side, and more extensively over the right side of the chest.

Leechings, antimonials and blistering, somewhat relieved the patient, but not so effectually as on former occasions ; this attack was much more extensive and obstinate than any former one, great emaciation and debility, with oedema of the extremities, came on, and it was very evident that she could not hold up long against so severe and repeated attacks. She improved so far as to be able to leave her bed in February, March, and the beginning of April, but there still remained very decided dulness in the inferior and lateral portions of the left side of the chest and the heart, and pulsation between the second and third ribs appeared to be closer to the surface of the chest ; they were much more superficial than formerly ; the see-saw souffle and purring pulsations were tremendous, and heard much more distinctly in all parts, still having the maximum at the point already indicated.

In the middle of April she again took to her bed, and died rather suddenly on the morning of the 1st of May 1841, one year and eight months after I first saw her.

Post-mortem examination, May 2nd, twenty-six hours after death.—The body is in an extreme state of emaciation, decomposition just commencing, slight discolouration at the inferior portions of the abdomen.

Head not examined.

Chest narrow. On the right side three elongated adhesions of the pleura, which is otherwise healthy.

The lung of the same side healthy, but congested with blood. On the left side, close and recent adhesions of the pleura in the upper half, the lower half contains about a pint and a half of purulent fluid. The lung at the same side is compressed and semi-carnified in its inferior portion, and very much congested superiorly. The bronchial mucous membrane is deeper coloured than natural generally.

The pericardium is healthy, and contains about its usual quantity of fluid.

The heart* is about twice its ordinary size, its parietes are of their natural thickness, and maintain their relative proportions, the dilatation is equal in all the cavities, which all contain yellowish coagula, some portions of which are so hard and firm as to do away with the possibility of considering them as entirely *post-mortem* formations.

The right auricle, with the exception of the dilatation and hypertrophy already spoken of, (which must also be taken into account, in addition to what is stated in the following description of the other cavities,) is perfectly normal.

The tricuspid valves are healthy. The auriculo-ventricular aperture is dilated, so as to render the valves somewhat ineffective in their action.

In the right ventricle, the columnæ carneæ are thicker than normal. The orifice of communication with the pulmonary artery is considerably dilated; within, or immediately below the opening, is the orifice of a communication with the left ventricle,

* See Plate VII.

which measures about a third of an inch across, and the eighth of an inch from above, downwards. The two anterior semilunar valves are perfect, of the normal size, but considerably thickened; the posterior one is imperfect, being so narrow and constricted in its middle portion, as to be a mere band-like projection from the artery: it is just underneath this portion of the valve that the abnormal opening of communication with the left ventricle is situated. The pulmonary artery is much dilated, it measures five inches and three quarters in its greatest circumference, (internal measure,) and in its anterior portion is a considerable thinning of its coats. From the valves and internal coat of the artery arise numerous polypi, attached by very thin pedicles, one of which arises at the upper part of the abnormal orifice of communication with the left ventricle, and passes into the canal, as if it had been so placed by the current of blood flowing from the right to the left ventricle through the aperture, and in this position it may have acted as an obstacle to prevent the flow of blood from the left to the right side of the heart. The branches of the pulmonary artery are considerably dilated. The opening of the ductus arteriosus into the pulmonary artery is contracted into a punctum, into which a hog's bristle is passed, without any violence, and easily made to traverse the canal of the duct up to its communication with the aorta, where it is obstructed by a membrane, so thin and transparent, that the dark colour of the bristle is seen through it. An irregular-shaped

portion of fibrine, about an inch and a half long and three parts of an inch broad, is situated in the anterior part of the dilated pulmonary artery, closely in apposition with the thinned portion of its coats, intimately attached to the polypi arising from this part of the artery and anterior semilunar valve, and seems to have been entangled by them.

The left auricle is healthy otherwise than the dilatation and hypertrophy. The Eustachian valve is perfectly closed.

The auriculo-ventricular opening is dilated, the mitral valve is normal in its structure, but not sufficient to close the dilated opening perfectly.

In the left ventricle the columnæ carneæ are thicker than normal : at the base of this cavity is seen, in addition to the usual apertures, the abnormal opening of communication with the right ventricle, situated rather anteriorly to, and just below the orifice of the aorta. It is here of a rounded triangular shape, and the free end of the polypus, already described as being placed in the passage, is seen hanging into the left ventricle.

The opening of the aorta is rather dilated, and closely in connection with the mitral valve is a patch of ossification. The semilunar valves are normal, but, from the dilatation of the artery, must be considered as scarcely effective. The ascending aorta is dilated about half beyond its normal size ; the distribution of the arteries from its arch may be considered as divisions of the artery, rather than as the giving off of branches, maintaining very much the

congenital disposition of this portion of the circulation. The artery loses a third of its capacity in giving off the arteria innominata, a sixth in giving off the left carotid, and another sixth in giving off the left subclavian, and is then contracted to about the third of its capacity in the ascending portion, and the coats of the artery are thinned in this situation, much more than in proportion to the diminution of its capacity. This contraction extends from the root of the left subclavian to the joining with the ductus arteriosus, where the whole circumference of the artery is still further contracted by a hardened, somewhat cartilaginous thickening of the coats, projecting equally on all sides into its interior to such an extent, as to contract the capacity of the artery again to about a third. So that, at this point, the capacity of the artery is not more than a ninth of what it is in its ascending portion. Just on the distal side of the annular constriction is the communication with the ductus arteriosus, closed by a thin, transparent membrane, and immediately below it the artery is dilated to the usual size of the ascending aorta.

All the organs of the digestive apparatus are healthy except the liver, which is enlarged to about three times its normal size, and much congested in its venous hepatic system of vessels.

The kidneys and urinary organs are healthy.

The uterus, ovaries and organs of the genital system are not more developed than is usually found at eleven or twelve years of age, or before puberty.

There is a point to which the perusal of the excellent paper of Dr. Cragie, in the Edinburgh Medical and Surgical Journal for October 1841, on the obliteration of the aorta, has called my attention, namely, the state of the collateral vessels, by which circulation must have been carried on, and the only excuse to be offered for such an important point having been omitted in the *post-mortem* examination is, that the obliteration in question in this preparation was not discovered until after it had been taken from the body, and, indeed, after the body was buried. But I well remember remarking the extraordinary size of the internal mammary arteries: and, as may be seen by the preparation, the ascending aorta and the vessels given off from the arch are considerably dilated. The intercostals were also larger than normal, thus showing that we have sufficient evidence of collateral circulation having been in some degree established.

There is a remark of Dr. Cragie which this preparation does not bear out, namely, that "the obliteration takes place at a definite point of the artery, namely, at or immediately below that part where the ductus arteriosus, converted into a ligament, joins the descending part of the arch of the aorta."

In this preparation, the obliteration is at or immediately above the part where the ductus arteriosus joins the aorta, and I think it is very probable that Dr. Cragie was led to make the statement in question, from not having paid attention to the

obliquity of the union of the ductus arteriosus with the aorta, which, in fact, opens into the canal of the aorta, much below its external apparent union, which is distinctly seen in this preparation, from the canal of the ductus arteriosus having remained sufficiently pervious to allow a bristle to be passed along it.

The other case I present to the Society is one of Cyanosis, in which there is total absence of the septum of the auricles, contraction at the origin of the aorta, shortening of the septum of the ventricles in its upper portion, and general hypertrophy of the heart.

George Ollet, aged 21, a shoemaker, presented himself as a patient at the General Dispensary, Birmingham, April 13th, 1839, suffering from distressing difficulty of breathing, palpitations of the heart, general anasarca, and a blue state of the skin, more especially of the lips, face, hands and genitals ; which was increased on coughing or any exertion ; a bad cough and expectoration of mucus. His skin was much below the usual temperature : a Fahrenheit's thermometer placed in the axilla or in the mouth did not stand higher than 80 degrees.

On examining the chest by percussion, the dulness of the precordial region was much larger than usual, the pulmonary sound somewhat duller than normal generally over the chest, but more especially on the right side. On auscultation a mucous rattle was heard all over the right side, and in the larger bronchial tubes on the left side of the chest. The

impulse of the heart was much greater than normal, and a *bruit de soufflet*, beginning with the first sound of the heart, and sufficiently long to mask the second sound, was heard, in its greatest intensity, underneath the middle bone of the sternum.

He said that, as long as he could recollect, his skin had been of the same colour, that he had always been much affected by cold, and frequently in severe weather he had fallen down senseless in the street, and had been revived by warmth and friction ; he is very subject to faintings. On taking cold he always suffers in the same way as at present, but not often so badly : when comparatively in health he has neither œdema nor cough, but at all times he is subject to palpitations and difficulty of breathing on any exertion, and always feels languid and feeble. His virile powers are very low ; he never feels any inclination towards the other sex ; there are very few hairs on the pubes ; he has neither beard nor whiskers ; his testicles are very small ; the state of puberty is not developed.

By mercurials, diuretics, and blistering the chest, the cough, expectoration and anasarca subsided in about three weeks, when he expressed himself as feeling in his usual state of health. I directed him to take plentifully of bitartrate of potash in his drinks, observe rest as much as possible, avoid cold, and regulate his diet. He went on pretty well for some months, working at his trade at his own house.

In the autumn of the same year I found him

suffering in a similar way to that just described, and this attack subsided in about the same time and under the use of the same remedies as the former.

On the 13th of December 1839, I was again called to my patient, and found him in a much worse state than I had seen him before : he had been ill more than a week ; remedies were of no avail ; and he died on the 15th.

His exhaustion and debility were such that I did not have him bled, a remedy highly spoken of by M. Bouilland in cyanosis, and which in this case might have been beneficial, I think, from the immense quantity of blood found about the heart and large veins after death.

*Post-mortem examination on the morning of the 17th,
forty hours after death.*

Head not examined.

Chest : Pleuræ free from adhesions, no fluid in their cavities.

Lungs generally much congested with blood. The mucous membranes of the bronchi red, and much loaded with mucus.

The heart and large veins enormously distended with dark-coloured blood. I have never seen them nearly so much so. The heart much enlarged and hypertrophied. The septum of the auricles so totally absent as to convert the cavities into one : the veins of the general circulation enter it on the right of a line drawn in the normal situation of the septum, and the pulmonary veins on the

left of it. The auriculo-ventricular openings are large, and between them the septum of the ventricles is much notched out. The orifice of the aorta is contracted to a third of its usual capacity, and its semilunar valves are diseased and ineffective.

Abdomen: The liver much congested in its venous hepatic system, and enlarged about a third more than its normal size. The other viscera of this cavity as well as of the pelvis are healthy.

Description of the Heart and large Vessels of Mary Bunn, as shown in Plate VII.

- A—Right ventricle.
- B—Anormal communication with the left ventricle.
- C—The two anterior semilunar valves.
- D—The posterior valve—its constricted state.
- E—Pulmonary artery, greatly dilated.
- F—Numerous polypi, attached by very thin pedicles.
- G—The polypus passing into the canal of communication with the left ventricle.
- H—An irregular-shaped portion of fibrine, situated in the anterior part of the dilated pulmonary artery, close to the thinned portion of its coats.
- I—Apex of the right auricle. J—Left ventricle.
- K—Probe passed from the left to the right ventricle, through the anormal opening.
- L—Ascending aorta, dilated. M—Arteria innominata.
- N—Left carotid. O—Left subclavian.
- P—Contracted and thinned portion of the aorta.
- Q—Portion contracted by a cartilaginous projection of the coats of the artery internally.
- R—Descending aorta. S—Ductus arteriosus.

OBSERVATIONS
ON A PARTICULAR FORM OF
E N C Y S T E D T U M O U R ,
WHICH OCCURS IN THE NECK, BUT IS NOT NECESSARILY
CONNECTED WITH THE THYROID BODY.

By BENJAMIN PHILLIPS, F.R.S.,
SURGEON TO THE ST. MARYLEBONE INFIRMARY, AND LECTURER ON
SURGERY AT THE WESTMINSTER HOSPITAL SCHOOL OF MEDICINE.

READ JUNE 28TH, 1842.

THE object of this communication is to lay before the Society the details of two cases of encysted tumours of large size, occurring in the necks of persons advanced in life, and having only a secondary connection with the thyroid body. In both of those cases the tumours originated at some distance from the thyroid body, but in their progress, they became somewhat intimately attached to it ; and upon this point alone can we rely, to enable us to distinguish between this variety of encysted tumour and that which originates in the substance of the thyroid body itself. They contain a serous fluid, holding in suspension much albuminous matter, and presenting much variety in colour ; in some cases being as dark as coffee-grounds, in others being of a light straw-colour. They are of slow growth,

often requiring a long period to attain great size. These tumours are not of unfrequent occurrence : they have been described by Mr. Hill of Dumfries, Maunoir, O'Beirne and others, but in most instances they have been confounded with thyroid tumours.

About two years ago I was requested by Mr. Maclure to see Mrs. White, who was about 65 years old, and had been for many years housekeeper to Lord Limerick. She had a large tumour extending from the jaw to below the sternum, and occupying particularly the front and right side of the neck. This tumour, which had been gradually increasing for many years, began to interfere seriously with respiration. When the hand was passed over it, it was firm except at a middle point, which projected in front of the sternum, and where there was an obscure sense of fluctuation. Into this portion of the tumour a grooved needle was passed, and a thin, bloody fluid followed the puncture. In appearance it was too much like arterial blood to make it prudent that much of this fluid should flow, lest her already debilitated frame might be still further broken down. A small piece of lint was held upon the point for two or three minutes, and the bleeding ceased. In two days afterwards, the lint was accidentally rubbed off, and the escape of similar fluid again occurred ; on this occasion Mr. Maclure had more difficulty in restraining it, and eventually applied lunar caustic to the orifice, for the purpose : for the time this plan succeeded, but when the eschar came away, the orifice was enlarged, and the

discharge of a bright reddish fluid continued. From day to day it reduced the size of the tumour, but at the same time it reduced the strength of the patient. Many weeks passed in this way, when the discharge became of a mixed character, part being sero-purulent, part blood-like ; the proportion of sero-purulent and ultimately purulent fluid increasing. At this time Sir B. Brodie saw this case, and advised that she should be kept quiet, and swallow ice. This course was pursued, and gradually the quantity of red fluid lessened until it became very small, when her strength gradually improved. The tumour had very much lessened, but the thyroid body was somewhat enlarged. At this time she got an attack of bronchitis, from which she died. No opportunity of examining the body was afforded.

— Scully, aged 66, was admitted into the St. Marylebone Infirmary, apparently *in articulo mortis*. She had an enormous tumour depending from the front and left side of the neck, and containing fluid. The history of the case was, that the disease had commenced twelve years before, and that it had very gradually acquired its present dimensions ; that she had been a patient in the Middlesex Hospital ; that while there the tumour had been twice punctured, and, fearing it might be done again, she had requested her discharge.

On the occasion of the first puncture, she stated that about a pint of a reddish watery fluid escaped ; on the second, only a very small quantity. When she was admitted at the infirmary, her great pros-

tration did not seem to depend on any serious interference with respiration or deglutition by the tumour, and for that day I was content to leave her to the influence of brandy. The tumour, when she lay her head upon the pillow, presented very much the appearance of a small pillow in front of the neck. On the following morning I proposed to have a cast taken from it, but during the night a small crack took place in the covering of the tumour, and about three pints of a reddish serous fluid escaped. When I examined it in the morning, there was no slough or inflamed point visible, and it was very difficult to discover the point through which the fluid had passed. The tumour had then very much of the character of a bladder, still half full of fluid. Her condition had materially improved, and it was determined to give her a day or two before any thing further was done. On the succeeding night there was a further escape of similar fluid, to the extent of upwards of three pints, and on the following morning, when I saw her, very little fluid remained in the cyst.

Spirit lotion was applied to the part, and in a very few days the cyst was empty. A sero-purulent discharge took place from it for many weeks, indeed, up to the moment of her leaving the infirmary, when her health was quite restored. There was an inconsiderable enlargement of the thyroid body, which yielded to some extent to the internal and external use of iodine.

About twelve months from the time of her dis-

charge, she was again admitted. Her general health was again bad, but there had been no further accumulation of fluid in the sac. The enlargement of the thyroid body still continued, and a small fistulous communication with the sac remained.

The preceding cases seem to me to belong to a class which was described by Maunoir as *Hydrocele du Cou*.

This memoir was read at the Institute of France, in 1815, but it does not appear to have attracted any attention. And after the adverse report made upon it by the Baron Percy, in 1817, it was utterly extinguished ; for although M. Maunoir, some years afterwards, published it, with a defence against the report of Percy, a large number of well-informed men are at this moment unaware of its existence.

I by no means wish it to be understood that M. Maunoir was the first to observe or to describe the affection, because we find many cases scattered over the older authors ; but his merit consists in showing that, in many of these cases, the thyroid body itself is scarcely at all affected, and that the disease frequently does not originate in the structure of that organ.

The cases which I have detailed, as well as those described by the authors I have named, justify me in stating, that there is a class of unilocular or multilocular encysted tumours developed in the neck, which contain a serous fluid, varying from a light yellow to a deep coffee-colour ; that in its nature this fluid is albuminous, coagulable by heat ; that those tumours are generally developed, quite inde-

pendently of the thyroid body, though in their progress they may become intimately connected with it, but that the connection does not usually involve any change of structure in that organ; that they are most frequently developed at, or after, the middle period of life; that they occur almost indiscriminately in both sexes; that they are almost always of slow growth, and that they often attain a large size; that they do not usually prove troublesome, until they are of sufficient size to interfere with respiration or deglutition. That the treatment by simple puncture, so as to evacuate their contents, is usually insufficient to cure the disease, because the opening is apt to close up and the cavity to refill; that puncture, with injection, has not succeeded better, and for this reason, either the fluid is too stimulating, and produces violent inflammation, with spasmodic action of the organs of respiration and deglutition, or it does not exercise sufficient action to modify the surface of the sac; and it is not easy to ascertain the just medium; that the treatment by making an incision of sufficient extent to expose the greater part of the interior of the sac, and stuffing the cavity, has been followed by too much local and constitutional irritation to render it prudent to adopt it as an ordinary method of cure; that the plan which has succeeded best is that to which Mr. Hill, of Dumfries, resorted, and which has been employed by M. Maunoir, Dr. O'Beirne, and Petrale, namely, puncture and seton. Whether an ordinary tent passed through the long diameter

of the sac, after puncture, might not answer the purpose equally well, we have not yet the necessary experience to determine, but I see no reason why it should not succeed.

EXPLANATION OF THE PLATES.

PLATE I.

Represents magnified views of the umbilical vessels, and villi of the placenta, described more in detail in Mr. Dalrymple's paper, page 29.

PLATE II.

Figs. 1, 2.—The two ulnæ of the same subject, affected with symmetrical chronic ulceration of their articular cartilages ; the deficiency in each being occupied by a growth of synovial membrane. See Mr. Paget's paper, Case I. page 30.

Figs. 3, 4.—Symmetrical monstrosity of the hands.

Figs. 5, 6.—Casts of hands symmetrically distorted from rheumatism.

The last four figures are illustrative of Dr. W. Budd's paper, page 121.

PLATE III.

Illustrates Dr. William Budd's paper, page 122. It represents the elbows and knees of the same patient ; in which it will be observed that the leprous spots on the right elbow and knee are repeated with great exactness upon the left elbow and left knee.

PLATE IV.

Represents the trachea of the patient whose case is described in Mr. Worthington's paper, page 220. The morbid appearances are described in Dr. Copland's note, page 225.

PLATE V.

Represents the appearance presented by the tumours in the case of Frances Massenger, described by Mr. Ancell at page 227.

PLATE VI.

Sections of the tumours attached to the liver and mesentery, in the case of Frances Massenger.

PLATE VII.

Represents the malformed heart of Mary Bunn, described by Dr. Fletcher in his paper, page 282.

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D O N A T I O N S
TO THE
ROYAL MEDICAL AND CHIRURGICAL SOCIETY,

1841-42.

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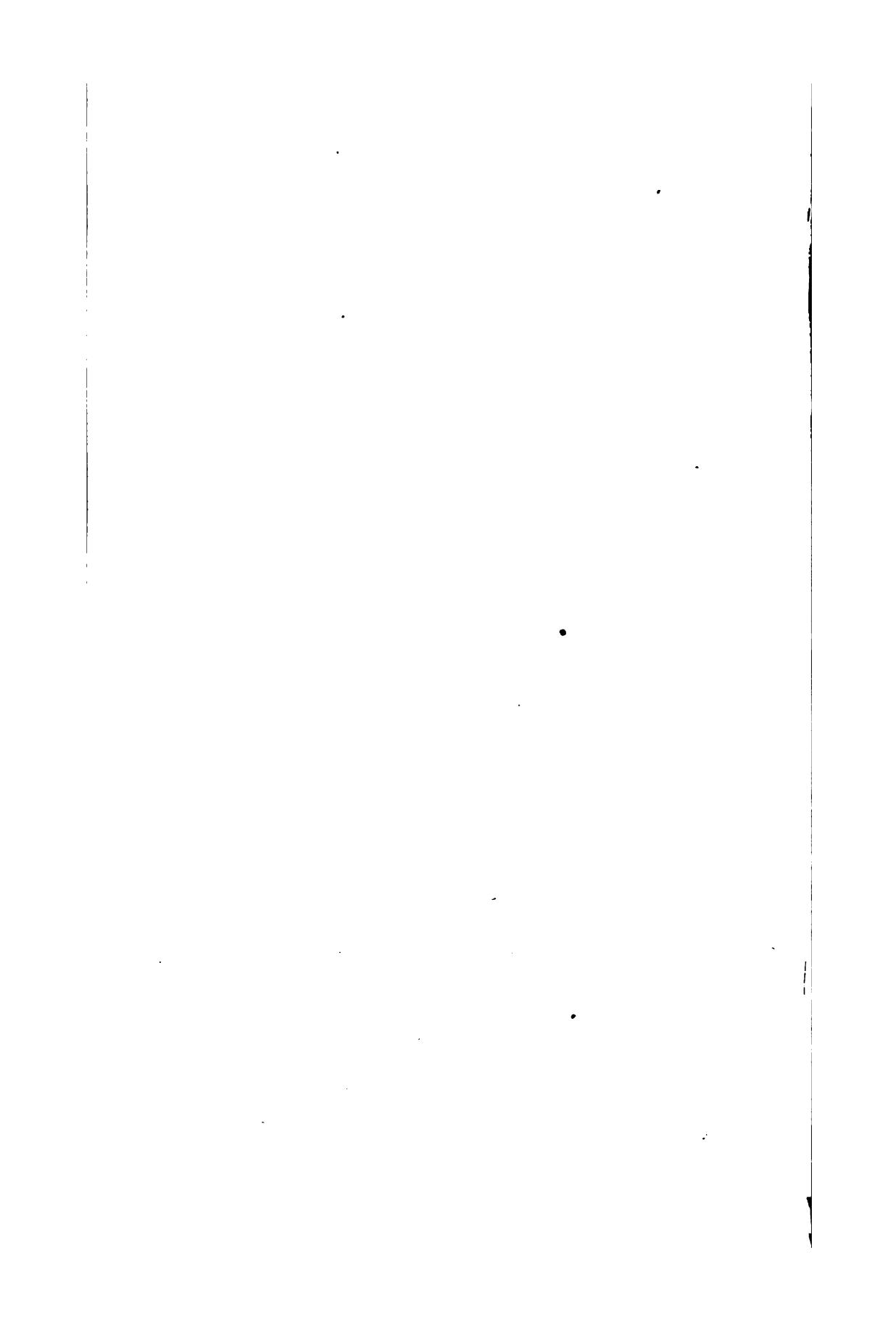


Fig. 1.

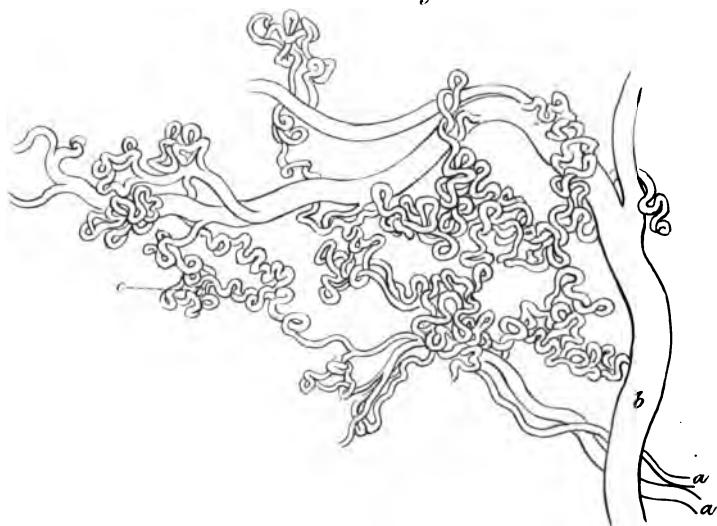
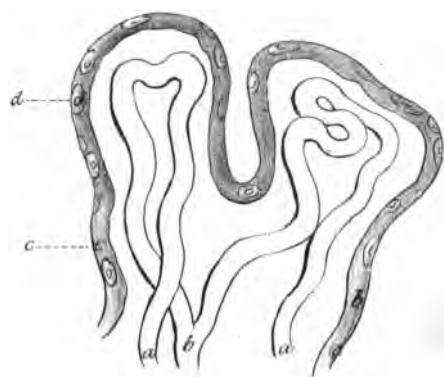


Fig. 2.

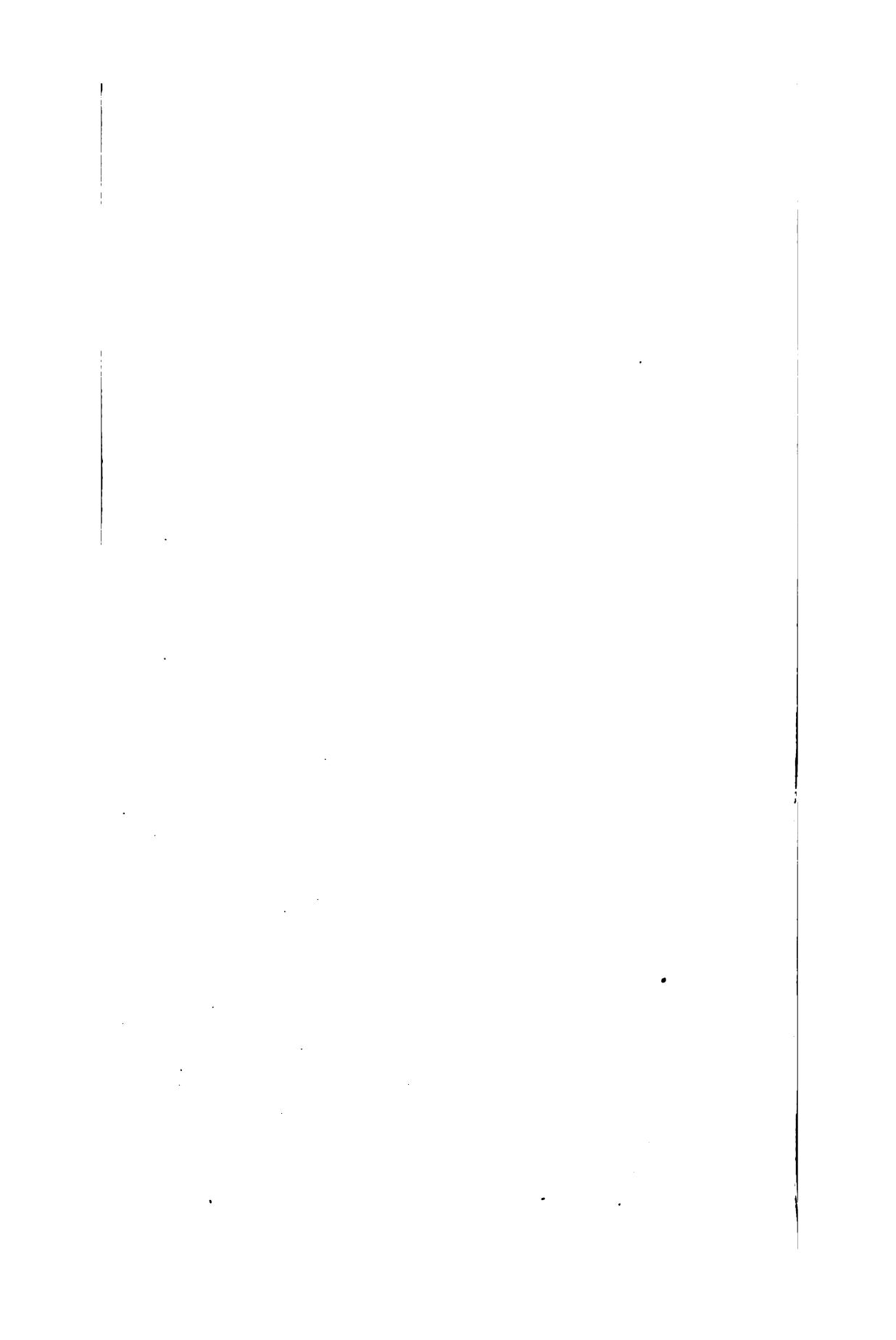


A. example in *Monachus*.

Fig. 3.



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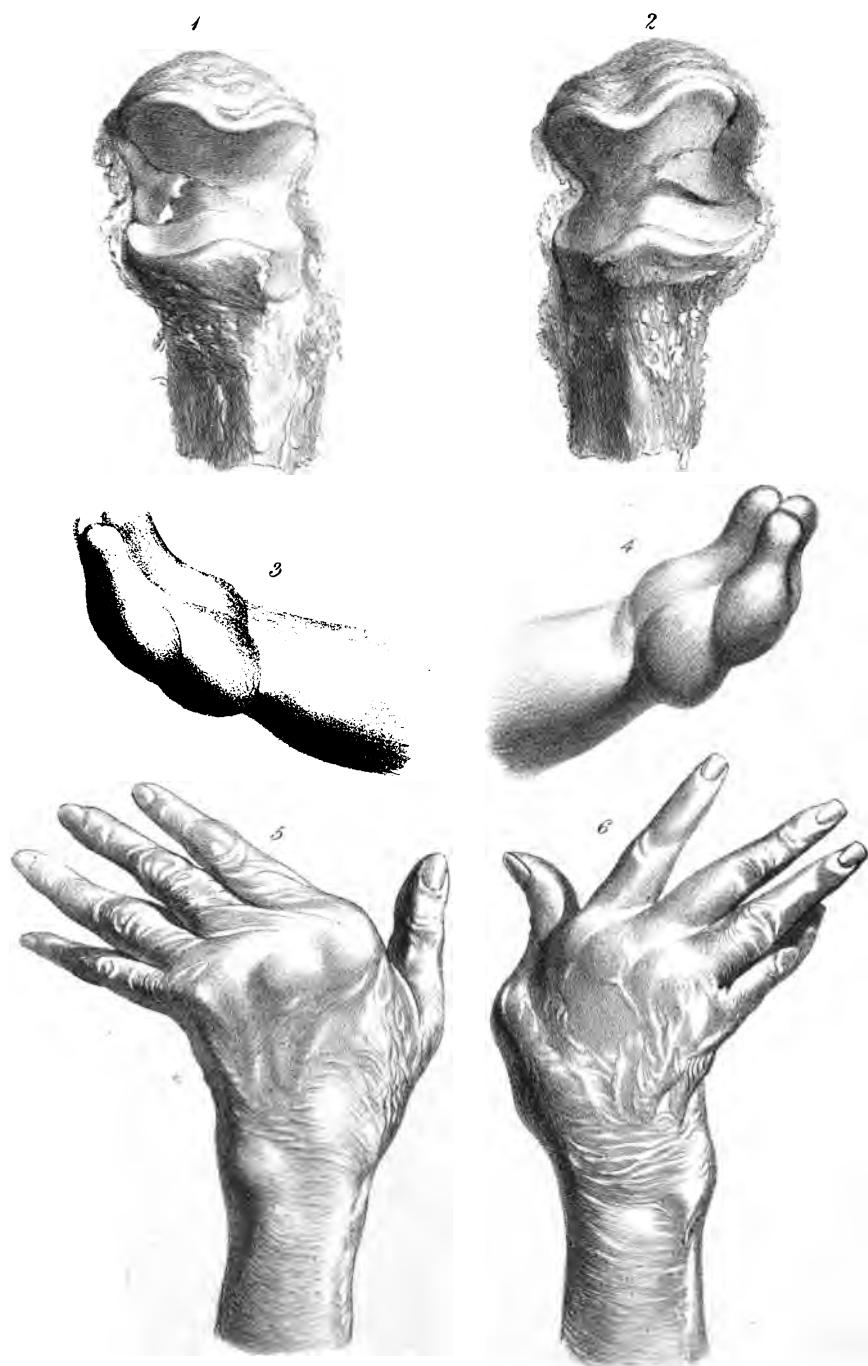
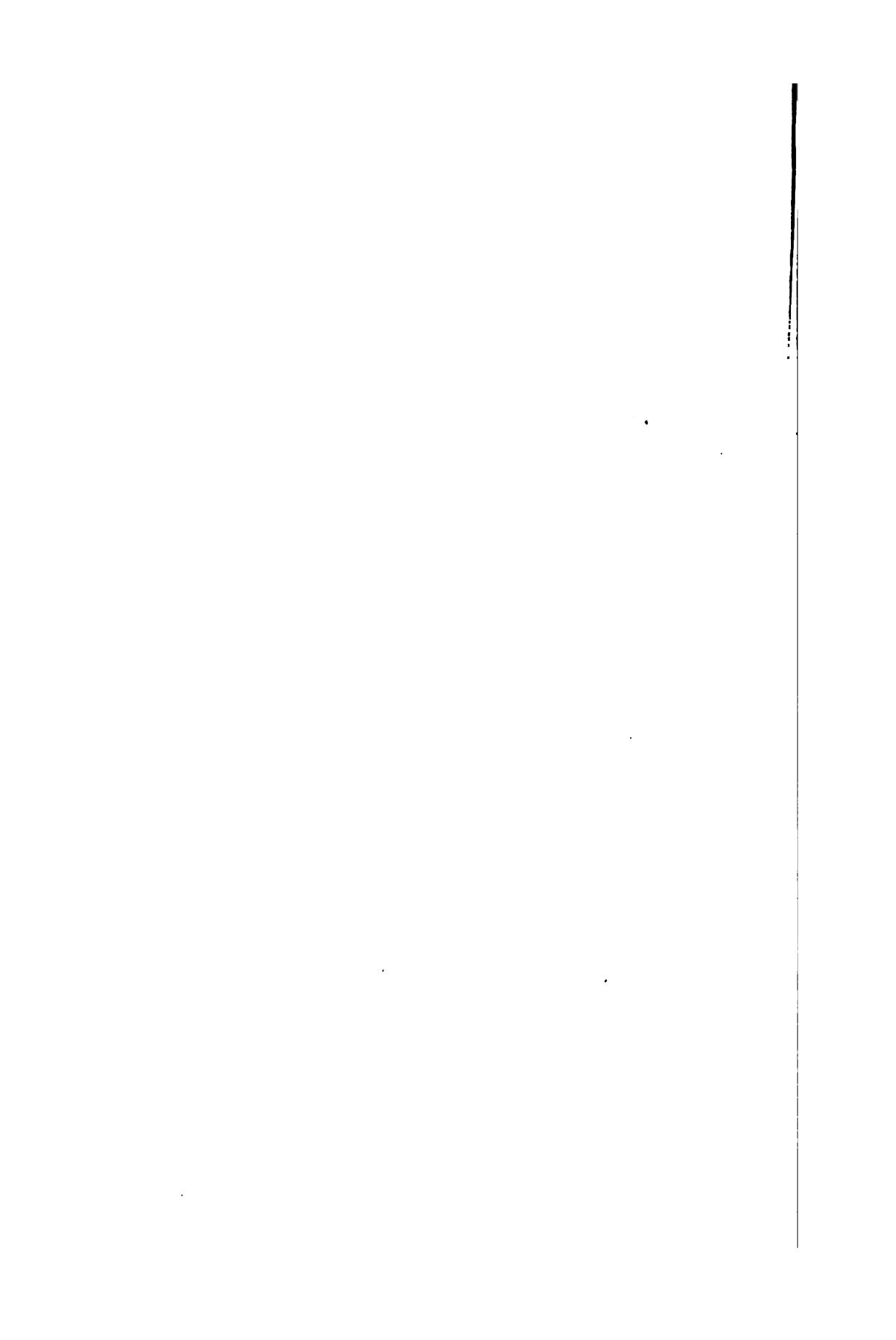
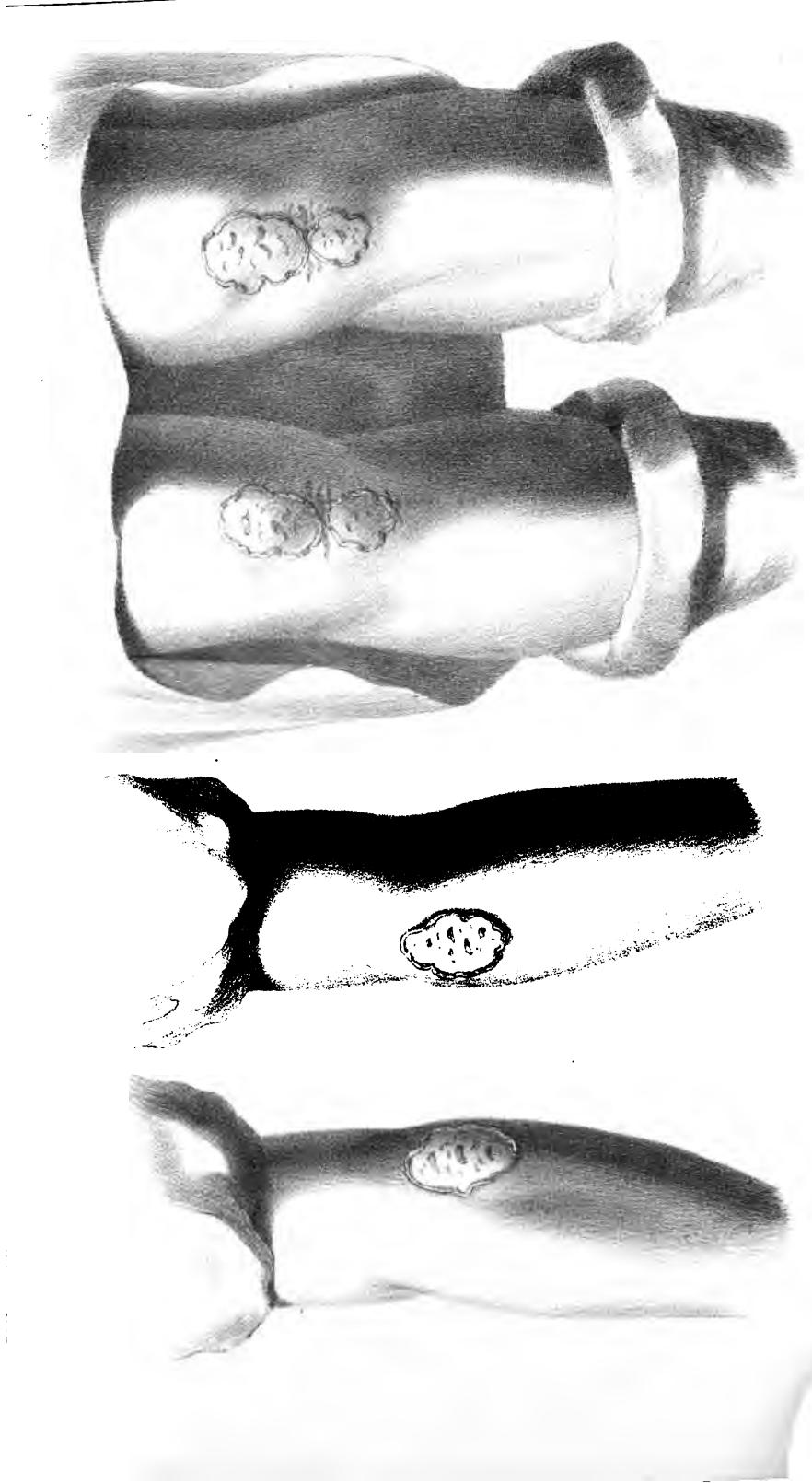


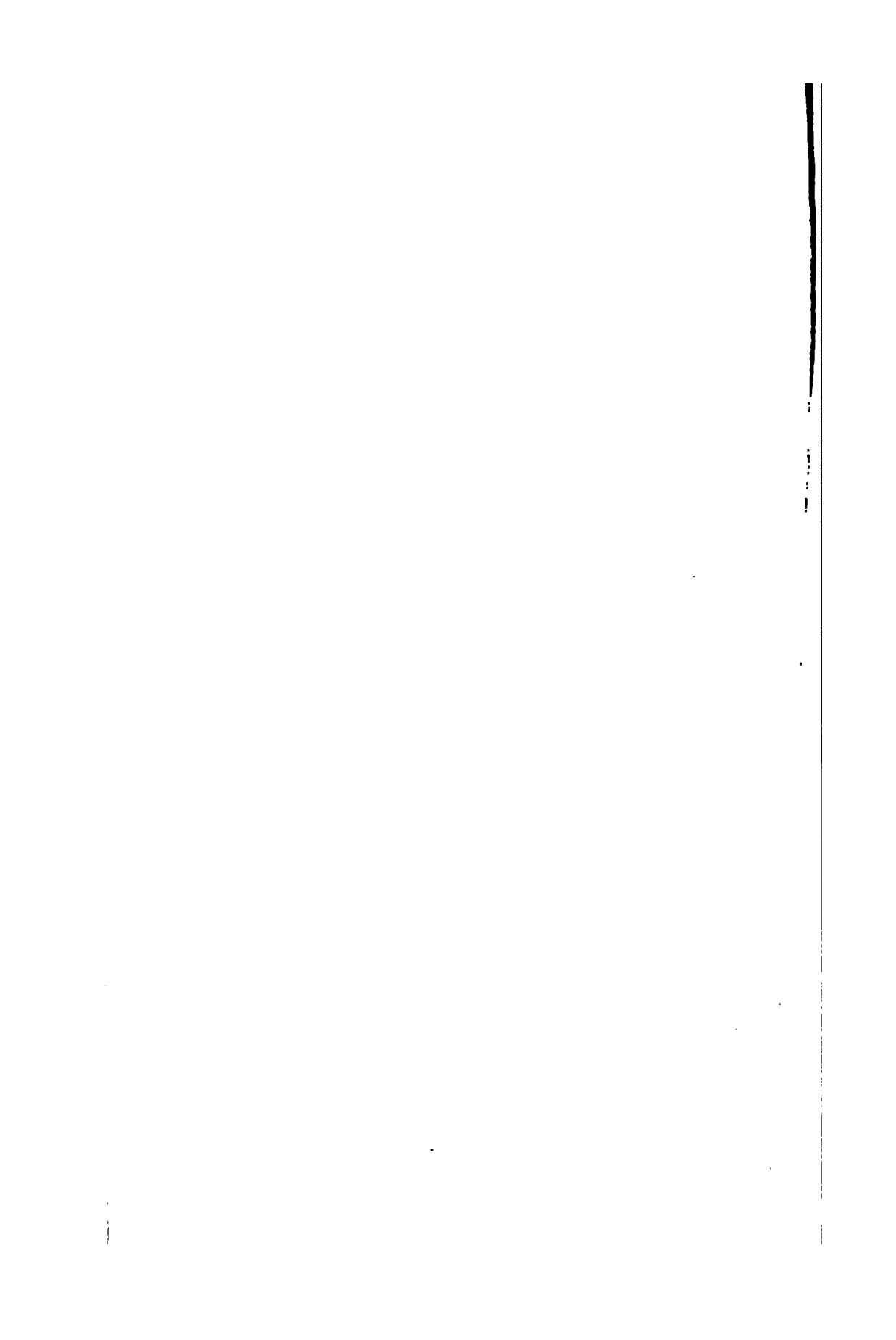
Fig. 1, 2, 5, 6 Ichneumon from *Nature* by G. Schaaf. Fig. 3, 4 W. Budd del. Printed by C. Hallmandel.





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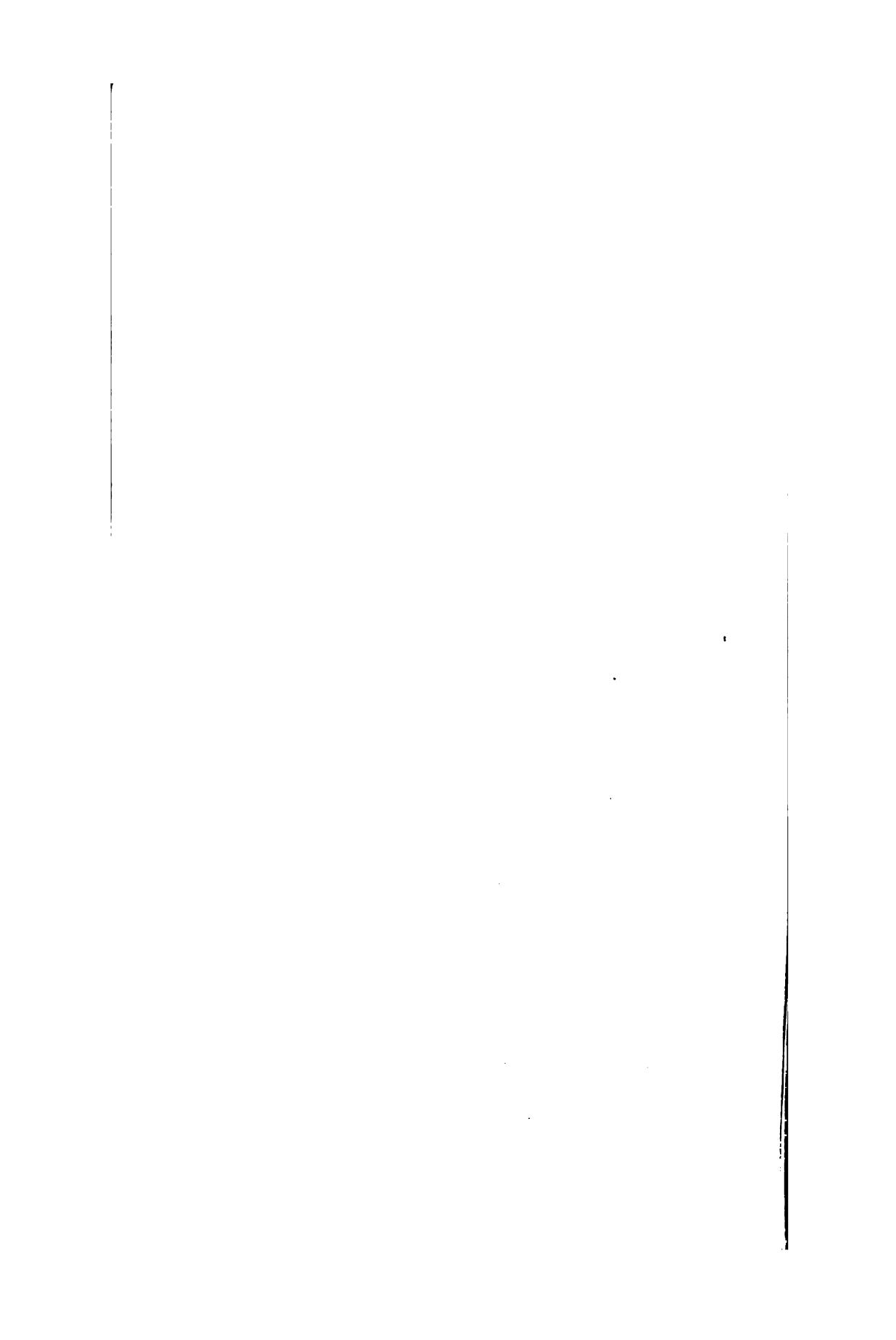
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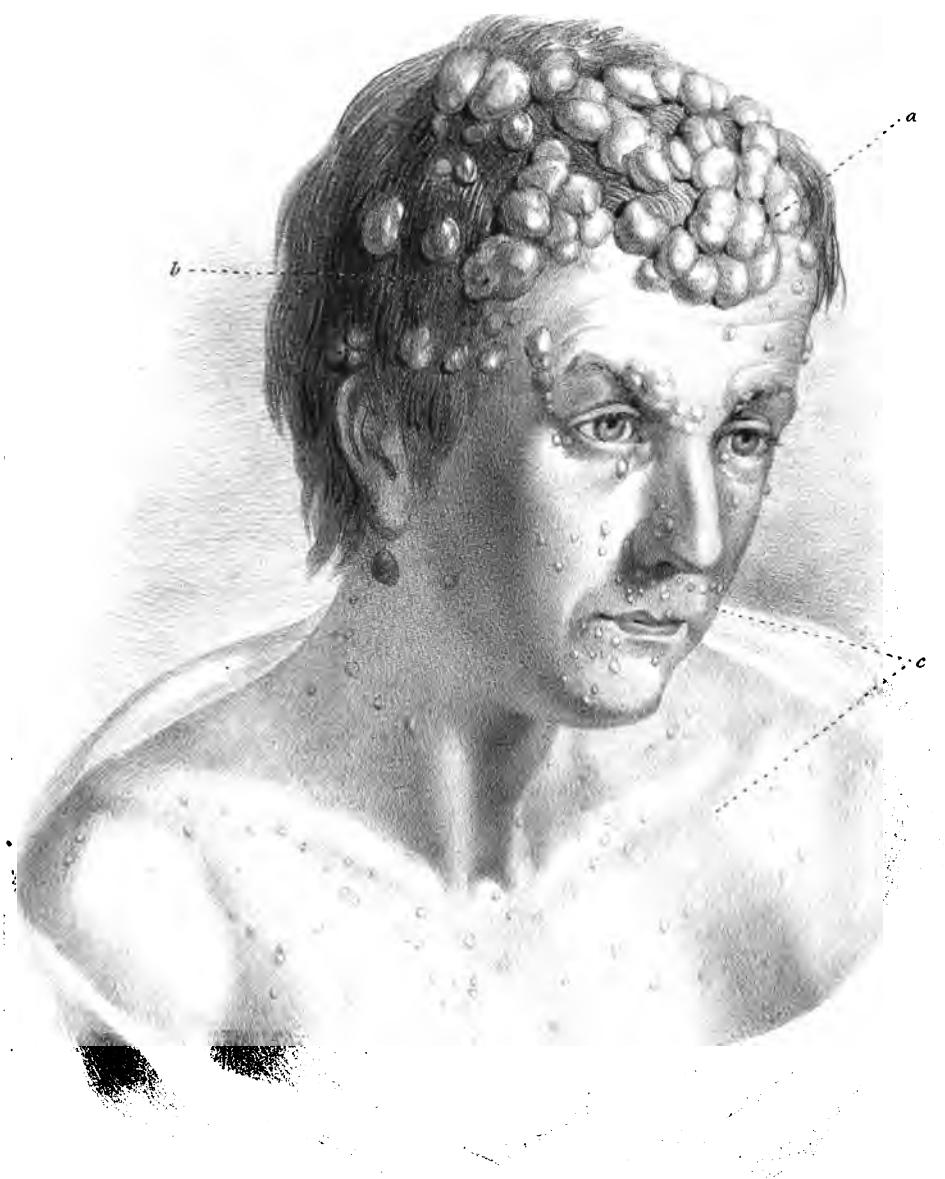




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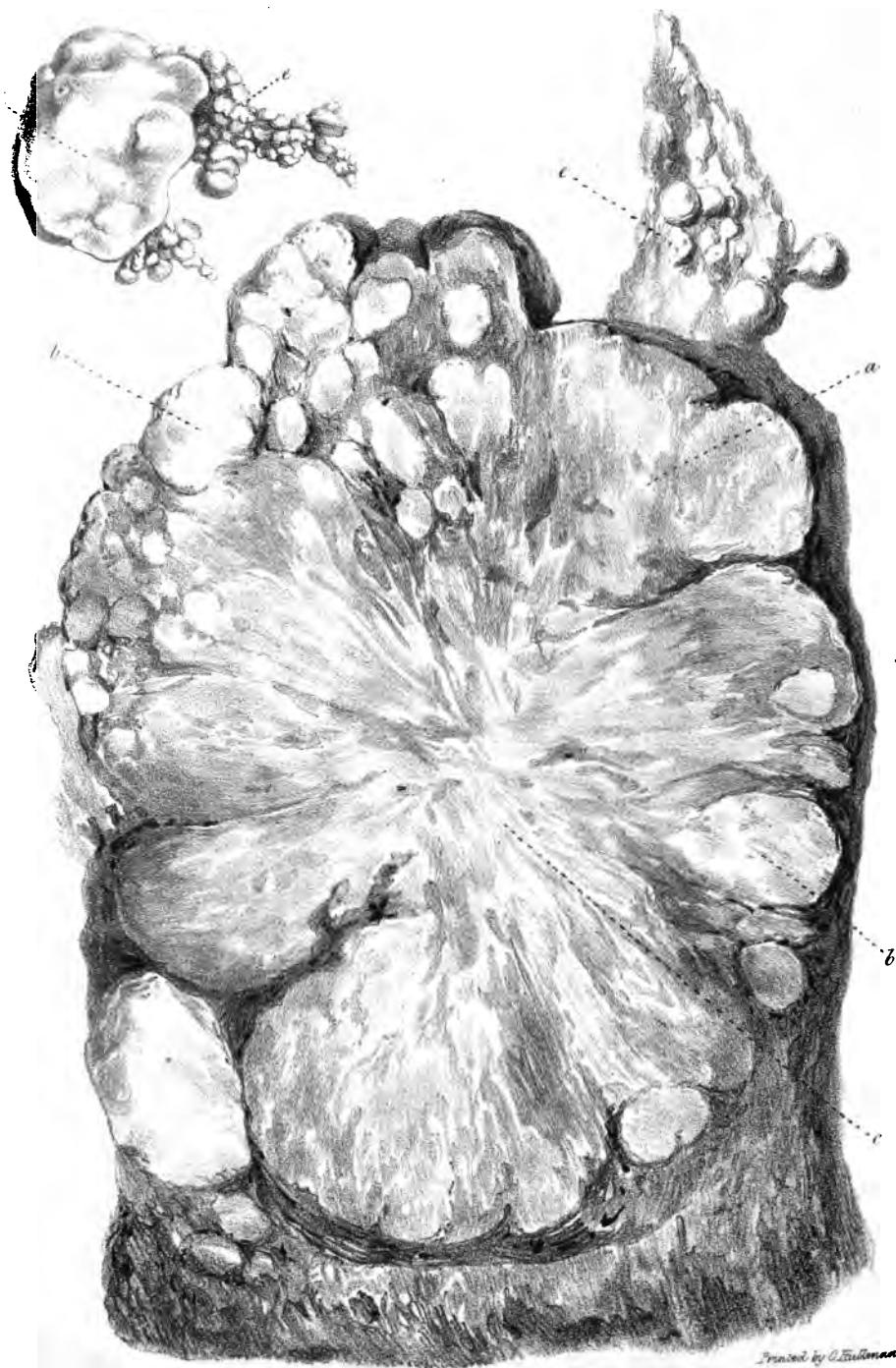
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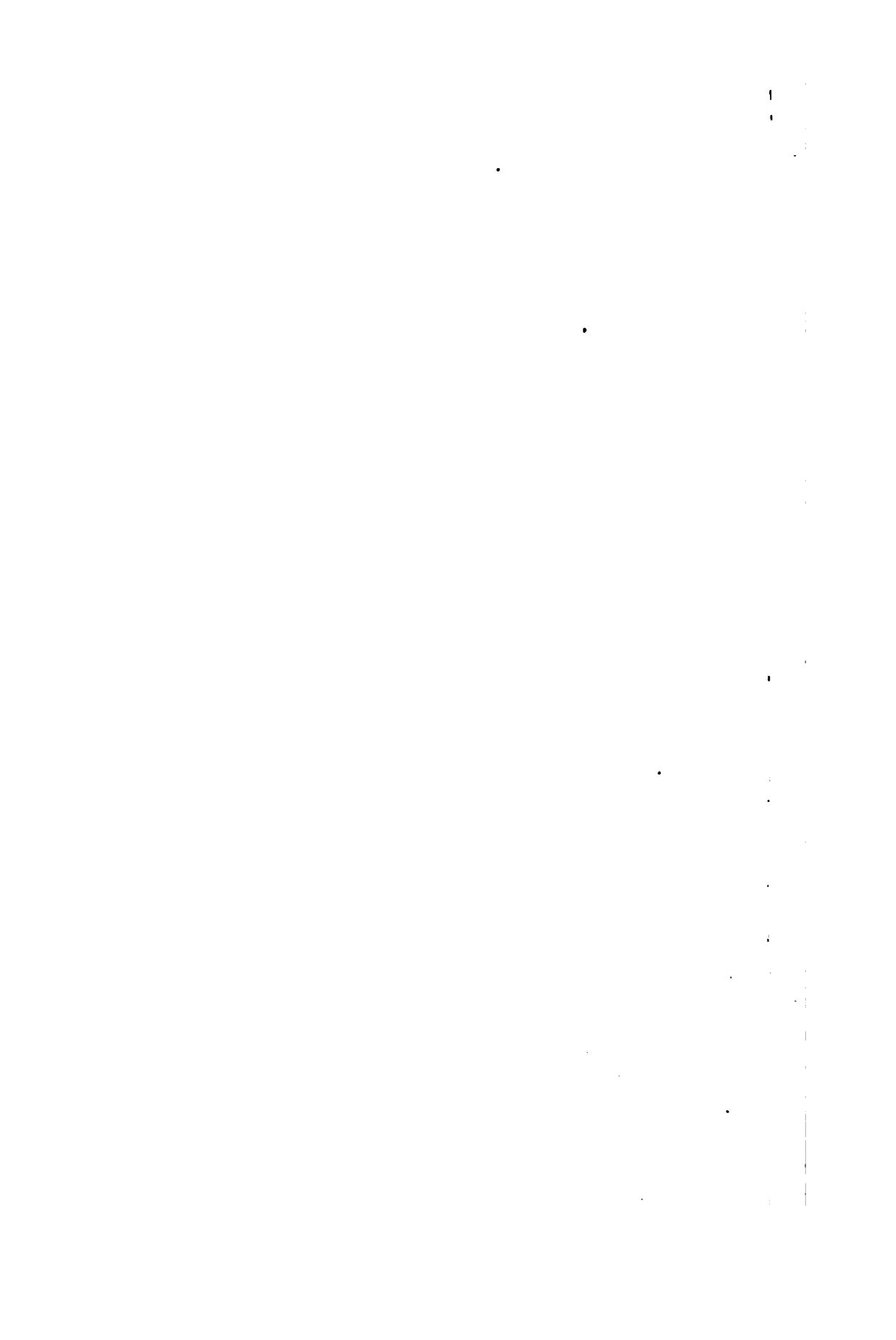


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